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(54) **Polyketide synthase genes**

(57) A DNA molecule isolated from *Streptomyces*

fradiae encodes the multi-functional proteins which direct the synthesis of the polyketide tylactone.

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Description

The present invention relates to DNA molecules responsible for encoding the multi-functional proteins that direct the biosynthesis of polyketide compounds, the products encoded by said DNA molecules, recombinant DNA expression vectors, and transformed microbial host cells.

Polyketides are a family of compounds that include a large number of structurally and functionally diverse natural products. For example, the polyketides provide the structural backbone for compounds that exhibit a variety of biological activities, such as, antibiotic, antitumor, and immunosuppressive agents.

Although the polyketides are quite diverse as indicated, they share a common mechanistic scheme of biosynthesis. The polyketides are synthesized by the successive condensation of small carboxylic acid residues followed by variable reduction steps at the resulting β -keto carbon (i.e., β -carbonyl) moiety in a process that is similar to the synthesis of fatty acids. The iterative synthetic process for many of these polyketides is controlled by a complex of large, multi-functional polypeptides that have distinct sites for the variety of activities that are required.

The general scheme for polyketide biosynthesis has been reviewed, for example, in Hopwood and Sherman, *Annu. Rev. Genet.*, 1990, 24:37 and Katz and Donadio, *Annu. Rev. Microbiol.*, 1993, 47:875.

Naturally-occurring DNA sequences that encode the polyketide synthase enzymes have generally been found to be organized into repeated subunits, or modules, each of which encodes all the activities required in a single round of synthesis, which includes the condensation step itself and the post-condensation processing steps. Each activity is associated with a distinct site, which contributes to the specificity for the particular carboxylic acid building block that is incorporated at each condensation step, or which dictates the particular post-condensation processing functions that will be executed.

For example, PCT publication WO 93/13663 describes the organization of the gene encoding the polyketide synthase of *Saccharopolyspora erythraea*. The gene is organized in modules, with each module effecting one condensation step. The precise sequence of chain growth and the processing of the growing chain is determined by the genetic information in each module. This PCT application describes an approach for synthesizing novel polyketide structures by manipulating in several ways the DNA governing the biosynthesis of the cyclic lactone framework. In order to adapt this methodology to other polyketides, however, the DNA molecules directing the biosynthetic processing must first be isolated.

The present invention is directed to the DNA sequence for the gene cluster responsible for encoding tyllactone synthase, the building machinery of tyllactone, which is the basic building block of tylosin. As a result, the present invention enables modification of the DNA sequence so as to alter the type of carboxylic acids incorporated, the number of carboxylic acids incorporated, the post-condensation reactions performed, or any combination thereof, thereby resulting in novel tylosin-related polyketides.

The present invention provides a DNA molecule comprising an isolated DNA sequence that encodes a tyllactone synthase domain. Thus, the present invention provides the DNA molecule of SEQ ID NO:1 and DNA molecules that contain submodules thereof. The present invention also provides the products encoded by said DNA molecules, recombinant DNA expression vectors, and transformed microbial host cells.

Figure 1 is a map of the tyllactone polyketide synthase region (*tylG*) of the *Streptomyces fradiae* DNA (~45 kb). Distances in kb are relative to the beginning of *tylG*. Open reading frames (ORFs) are indicated by arrows. Restriction sites are denoted as follows:

E - *EcoRI*
B - *BamHI*

Predicted functional domains are labeled as follows:

ACP - acyl carrier protein
AT - acyltransferase
DH - dehydratase
ER - enoylreductase
KR - ketoreductase
KR' - ketoreductase-like domain predicted to be inactive
KS - ketosynthase
KS' - ketosynthase-like domain in which a glutamine residue is present in the position occupied by an active site cysteine in a normal ketosynthase
TE - thioesterase.

Figure 2 depicts the biosynthetic pathway for tyllactone synthesis.

Figure 3 is a map of the two clones that span the whole region of the *tylG* DNA.

Figure 4 is a map of the *srnG* region of the *Streptomyces ambofaciens* DNA. Distances in kb are relative to the beginning of *srnG*. Open reading frames are indicated by arrows. The *srnG* DNA (0-42 kb) is the platenolide polyketide synthase region. Restriction sites are denoted as above with additions as follows:

AP - *Apal*
 G - *BglII*
 K - *KpnI*
 P - *PstI*
 X - *XhoI*

Predicted functional domains are labeled as above.

Figure 5 demonstrates the biosynthetic pathway for platenolide synthesis.

Figure 6 is a map of the two clones that span the whole region of the *srnG* DNA.

Polyketides are a large class of structurally and functionally diverse natural products. A common feature of compounds in this class is that their synthesis is accomplished under the direction of a complex of multi-functional peptides, termed a "polyketide synthase." Molecular genetic analysis of polyketide synthase genes has revealed two distinct classes of enzymes operating for different polyketides: 1) the aromatics, which are made through an essentially iterative process, and 2) the complex polyketides, which comprise several repeats of the same activities arranged in few very large polypeptides.

Among the complex polyketide synthase genes, a polyketide synthase includes enzymatic and regulatory activities responsible for exercising substrate specificity, catalyzing the condensation of small carboxylic acid building blocks (in the form of coenzyme A thioesters) to a growing polyketide carbon chain, and catalyzing the post-condensation processing reactions at the β -carbonyl functional group that results from the condensation reaction.

The condensation reaction requires several activities including acyl carrier protein (ACP), β -ketosynthase (KS), and acyltransferase (AT). Once a condensation has occurred, the resulting β -carbonyl functional group may be modified. Post-condensation activities that may be involved include β -ketoreductase (KR), dehydratase (DH), and enoylreductase (ER). Polyketide biosynthesis is terminated by a thioesterase (TE) activity. Whether all, some, or none of these activities act after a particular condensation step determines the structure of the final product.

The present invention provides, in particular, the DNA sequence encoding the polyketide synthase responsible for biosynthesis of tylactone, i.e., tylactone synthase. Tylactone itself is the polyketide backbone of the commercially significant antibiotic tylosin. The tylactone synthase DNA sequence, which defines the tylactone synthase gene cluster, directs biosynthesis of the tylactone polyketide by encoding the various distinct activities of tylactone synthase.

The gene cluster for tylactone synthase, like other complex polyketide biosynthetic genes whose organization has been elucidated, is characterized by the presence of several open reading frames (ORFs), each of which contains one or more repeated units termed "modules." A module is defined as the genetic element encoding all of the distinct activities required in a single round of synthesis, i.e., one condensation step and all the β -carbonyl processing steps associated therewith. Each module encodes an ACP, a KS, and an AT activity to accomplish the condensation portion of the synthesis, and selected post-condensation activities to effect β -carbonyl processing. The polypeptides encoded by such modules are termed "synthase units" (SUs).

Each module is further characterized by the inclusion of submodules that are responsible for encoding the distinct activities of tylactone synthase. For purposes of the present invention, the term "submodule" is defined as the portion of the polyketide synthase DNA sequence that encodes a distinct activity, or "domain". Thus, a domain is taken as commonly understood to mean that part of the polyketide synthase polypeptide necessary for a given distinct activity.

Organization of the tylactone synthase gene cluster derived from *Streptomyces fradiae*, is shown in Figure 1. The tylactone synthetic pathway, with indications of the specific carboxylic acid substrates used for each condensation reaction and the various post-condensation activities, is shown in Figure 2.

A preferred DNA molecule comprising the tylactone synthase gene cluster isolated from *Streptomyces fradiae* is represented by SEQ ID NO:1. Other preferred DNA molecules of the present invention include the various open reading frames of SEQ ID NO:1 that encode individual multi-functional polypeptides. These are represented by the following nucleotide residues of SEQ ID NO:1: ORF1 816 to 14234, ORF2 14351 to 19945, ORF3 20010 to 31199, ORF4 31232 to 36067, and ORF5 36249 to 41774. The predicted amino acid sequences of the various peptides encoded by these sequences are shown in SEQ ID NO:2, 3, 4, 5, and 6, respectively.

Yet other preferred DNA molecules of the present invention include the modules that encode the synthase units, which include all the activities necessary for a single round of synthesis. These are represented by the following nucleotide residues of SEQ ID NO:1: Starter Module 942 to 3929, Module 1 3993 to 8471, Module 2 8541 to 13970, Module 3 14411 to 19666, Module 4 20136 to 24611, Module 5 24675 to 30902, Module 6 31337 to 35743, and Module 7 36360 to 40826. The predicted amino acid sequences of the various synthase units encoded by these modules are

represented, respectively, by the following amino acid residues: Starter SU 43 to 1038, SU1 1060 to 2552 and SU2 2576 to 4385 in SEQ ID NO:2; SU3 21 to 1772 in SEQ ID NO:3; SU4 43 to 1534 and SU5 1556 to 3631 in SEQ ID NO:4; SU6 36 to 1504 in SEQ ID NO:5; and SU7 38 to 1526 in SEQ ID NO:6.

Still other preferred DNA molecules include the various submodules that encode the various domains of ty lactone synthase. These submodules are represented by the following nucleotide residues: KS^Q(s) 942 to 2156, AT(s) 2571 to 3557, ACP(s) 3675 to 3929, KS1 3993 to 5264, AT1 5631 to 6617, KR1 7410 to 7949, and ACP1 8220 to 8471 of Module 1 in SEQ ID NO:1; KS2 8541 to 9812, AT2 10260 to 11246, DH2 11319 to 11876, KR2 12861 to 13415, and ACP2 13719 to 13970 of Module 2 in SEQ ID NO:1; KS3 14411 to 15697, AT3 16055 to 17122, DH3 17198 to 17794, KR3 18584 to 19138, and ACP3 19415 to 19666 of Module 3 in SEQ ID NO:1; KS4 20136 to 21404, AT4 21771 to 22757, KR4 23541 to 24077, and ACP4 24360 to 24611 of Module 4 in SEQ ID NO:1; KS5 24675 to 25949, AT5 26292 to 27284, DH5 27360 to 27917, ER5 28767 to 29813, KR5 29829 to 30368, and ACP5 30651 to 30902 of Module 5 in SEQ ID NO:1; KS6 31337 to 32608, AT6 32975 to 33961, KR6 34694 to 35236, and ACP6 35492 to 35743 of Module 6 in SEQ ID NO:1; KS7 36360 to 37631, AT7 37989 to 38987, KR7 39759 to 40313, ACP7 40575 to 40826, and TE7 41235 to 41333 of Module 7 in SEQ ID NO:1.

The predicted amino acid sequences of the various domains encoded by these submodules are represented, respectively, by KS^Q(s) 43 to 447, AT(s) 586 to 914, ACP(s) 954 to 1038, KS1 1060 to 1483, AT1 1606 to 1934, KR1 2199 to 2378, and ACP1 2469 to 2552 in SEQ ID NO:2; KS2 2576 to 2999, AT2 3149 to 3477, DH2 3502 to 3687, KR2 4016 to 4200, and ACP2 4302 to 4385 in SEQ ID NO:2; KS3 21 to 449, AT3 569 to 924, DH3 950 to 1148, KR3 1412 to 1596, and ACP3 1689 to 1772 in SEQ ID NO:3; KS4 43 to 465, AT4 588 to 916, KR4 1178 to 1356, and ACP4 1451 to 1534 in SEQ ID NO:4; KS5 1556 to 1980, AT5 2095 to 2425, DH5 2451 to 2636, KR5 3274 to 3453, and ACP5 3548 to 3631 in SEQ ID NO:4; KS6 36 to 459, AT6 582 to 910, KR6 1155 to 1335, and ACP6 1421 to 1504 in SEQ ID NO:5; KS7 38 to 461, AT7 581 to 913, KR7 1171 to 1355, ACP7 1443 to 1526, and TE7 1663 to 1695 in SEQ ID NO:6.

Although not wishing to be bound to any particular technical explanation, sequence similarity exists among domain boundaries in various polyketide synthase genes. Thus, one skilled in the art is able to predict the domain boundaries of newly discovered polyketide synthase genes based on the sequence information of known polyketide synthase genes. In particular, the boundaries of submodules, domains, and open reading frames in the instant application are predicted based on sequence information disclosed in the instant application and the locations of the domain boundaries of the erythromycin polyketide synthase (Donadio et al., Gene 111:51 (1992)).

The DNA sequence of the ty lactone synthase gene was determined from recombinant DNA clones prepared from the DNA of *Streptomyces fradiae*. The ty lactone synthase gene is contained in recombinant DNA vectors pSET506 and pSET507 (Figure 3), which are available from the National Center for Agricultural Utilization Research, 1815 North University Street, Peoria, Illinois 61604-3999, in *E. coli* K12 MM294 under accession numbers NRRL B-18688 (deposited July 19, 1990) and NRRL B-18689 (deposited July 19, 1990), respectively.

Techniques for isolating bacterial DNA are readily available and well known in the art. Any such technique can be employed in this invention. In particular, DNA from these cultures is isolated as follows. Lyophilis of *E. coli* K12 MM294/pSET506 or *E. coli* K12 MM294/pSET507 are plated onto L-agar (10 g tryptone, 10 g NaCl, 5 g yeast extract, and 15 g agar per liter) plates containing 100 µg/ml ampicillin to obtain a single colony isolate of the strain. This colony is used to inoculate about 500 ml of L-broth (10 g tryptone, 10 g NaCl, 5 g yeast extract per liter) containing 100 µg/ml ampicillin, and the resulting culture is incubated at 37° C with aeration until the cells reach stationary phase. Cosmid DNA is obtained from the cells in accordance with procedures known in the art (see e.g., Rao et al., 1987 in *Methods in Enzymology*, 153:166).

DNA of the current invention can be sequenced using any known techniques in the art such as the dideoxynucleotide chain-termination method (Sanger, et al., *Proc. Natl. Acad. Sci.* 74:5463 (1977)) with either radioisotopic or fluorescent labels. Double-stranded, supercoiled DNA was used directly for templates in sequence reactions with sequence-specific oligonucleotide primers. Alternatively, fragments were used to prepare libraries of either random, overlapping sequences in the bacteriophage M13 or nested, overlapping deletions in a plasmid vector. Individual recombinant DNA subclones were then sequenced with vector-specific oligonucleotide primers. Radioactive reaction products were electrophoresed on denaturing polyacrylamide gels and analyzed by autoradiography. Fluorescent-labeled reaction products were electrophoresed and analyzed on Applied Biosystems (ABI Division, Perkin Elmer, Foster City, CA 94404) model 370A and 373A or DuPont (Wilmington, DE) Genesis DNA sequencers. Sequence data was assembled and edited using Genetic Center Group (GCG, Madison, WI) programs GelAssemble and SeqEd or the ABI model 670 Inherit Sequence Analysis system and the AutoAssembler and SeqEd programs.

Polypeptides corresponding to a domain, a synthase unit, or a multi-functional polypeptide can be produced by expression of the cDNA sequence in a bacteria, for example, using known expression vectors. Alternatively, the polypeptides mentioned above can be extracted from ty lactone-producing bacteria such as *Streptomyces fradiae*. In addition, the techniques of synthetic chemistry can be employed to synthesize the polypeptides mentioned above. The procedures and techniques for isolation and purification of homogenous protein or polypeptides are well known in the art.

Since the genetic organization of the ty lactone synthase gene cluster appears to correspond to the order of the reactions required to complete synthesis of ty lactone, knowledge of the ty lactone synthase DNA sequence, its genetic organization, and the activities associated with particular open reading frames, modules, and submodules of the gene enables production of novel polyketides having a predicted structure that are not otherwise available. Modifications may be made to the DNA sequence that either alter the initial carboxylic acid building block used or the building block added at any of the condensation steps. The ty lactone synthase gene may also be modified to alter the actual number of condensation steps done, thereby changing the size of the carbon backbone. Modifications to portions of the DNA sequence that encode the post-condensation processing activities will alter the functional groups appearing at the various condensation sites on the carbon chain backbone.

These modifications can be accomplished by substituting submodules derived from the ty lactone synthase gene and having known activities for corresponding submodules from another polyketide synthase gene having different activities. Submodules from ty lactone synthase may also be combined with submodules from other polyketide synthase genes to effect additional catalytic steps. Accordingly, a DNA molecule wherein at least one submodule from the ty lactone synthase gene has been combined with, or substituted for, submodules from the DNA sequence of other polyketide synthase genes is also provided by the present invention. Further, submodules that are a part of the present invention may be selectively inactivated thereby giving rise to predictable novel polyketide structures.

For example, a submodule encoding a KS' activity, an AT activity, and an ACP activity, all derived from the first open reading frame of the ty lactone synthase gene (ORF1), were exchanged for the corresponding submodule in the platenolide synthase gene (see Example 2). Platenolide is the polyketide backbone of the antibiotic spiramycin.

The submodule from the ty lactone synthase gene encodes a domain that catalyzes the incorporation of a propionate as the initial building block whereas the corresponding submodule of the platenolide synthase gene encodes a domain that catalyzes the incorporation of an acetate building block. When the resulting DNA molecule was placed into a bacterial strain and grown under conditions promoting polyketide synthesis, a hybrid molecule having the structure that would be predicted by incorporation of an additional methyl side-chain at the start of the growing polyketide chain was synthesized, in particular, 16-methyl platenolide.

One skilled in the art is fully familiar with the degeneracy of the genetic code. Consequently, the skilled artisan can modify the specific DNA sequences provided by this disclosure to provide proteins having the same or improved characteristics compared to those polypeptides specifically provided herein. Also, one skilled in the art can modify the DNA sequences to express an identical protein to those provided, albeit expressed at higher levels. Furthermore, one skilled in the art is familiar with means to prepare synthetically, either partially, or in whole, DNA sequences which would be useful in preparing recombinant DNA vectors or coding sequences which are encompassed by the current invention. Additionally, recombinant means for modifying the DNA sequences provided may include for example site-directed deletion or site-directed mutagenesis. These techniques are well known to those skilled in the art and require no further elaboration here. Consequently, as used herein, DNA which is isolated from natural sources, prepared synthetically or semi-synthetically, or which are modified by recombinant DNA methods, are within the scope of the present invention.

Likewise, those skilled in the art will recognize that the polypeptides of the invention may be expressed recombinantly. Alternatively, these polypeptides may be synthesized as well, either in whole or in part, by conventional known non-recombinant techniques; for example, solid-phase synthesis. Thus, the present invention should not be construed as necessarily limited to any specific vector constructions or means for production of the specific polyketide synthase molecules exemplified. These alternate means for preparing the present polypeptides are meant to be encompassed by the present invention.

Many cyclized polyketides undergo glycosylation at one or more sites. Tylosin is a 16-membered cyclic lactone, ty lactone, with three attached sugar residues. The process of converting ty lactone to tylosin is well known in the art. The present invention also provides the information needed to synthesize novel tylosin-related polyketides based on ty lactone. The principles have already been described above. In addition, any product resulting from post-transcriptional or post-translational modification *in vivo* or *in vitro* based on the DNA sequence information disclosed herein are meant to be encompassed by the present invention.

The following examples are provided for exemplification purposes only and are not intended to limit the scope of the invention which has been described in broad terms above.

EXAMPLE 1

The DNA sequence of the *Streptomyces fradiae* ty lactone synthase gene, *tylG*, was obtained by sequencing the inserts of recombinant DNA subclones containing contiguous or overlapping DNA segments, which when considered cumulatively span the entire region of *tylG*. All sequences representing *tylG* are fully contained in the overlapping cosmid subclones pSET506 and pSET507.

In accord with the current invention, the sequence may now be obtained by subcloning and sequencing the DNA fragment designated by *EcoRI* restriction sites at 3.0 and 4.0 kb on the map presented in Figure 3, the fragment bounded

by the *EcoRI* site at 4.0 kb and the *BamHI* site at 7.5 kb, the fragments bounded by *BamHI* sites at 7.5, 12.0, 23.4, 27.3, 34.6, 39.5, and 50.5 kb.

In order to obtain the *tylG* gene on a single DNA fragment, the 31.6 kb DNA fragment bounded by the *EcoRI* site at 3.0 kb and the *BamHI* site at 34.6 kb is isolated from a partial digestion of pSET506 with the restriction enzymes *EcoRI* and *BamHI*. The 15.9 kb DNA fragment bounded by the *BamHI* sites at 34.6 and 50.5 kb is isolated from a partial digestion of pSET507 with the restriction enzyme *BamHI*. The resulting fragments are ligated and cloned in an appropriate recombinant DNA vector. Clones containing the correct orientation of the two ligated fragments are identified by restriction enzyme site mapping.

EXAMPLE 2

Production of a polyketide hybrid of platenolide and tylactone

The lactone rings of the polyketides platenolide and tylactone undergo an identical set of post-condensation processing steps. However, these two polyketides are synthesized by condensation of more than one type of carboxylic acid and the specific building blocks chosen for incorporation in the two pathways differ. The organization of the platenolide gene cluster is shown in Figure 4 along with the accompanying synthetic pathway in Figure 5. The specific carboxylic acid substrates that are used for each condensation reaction and the post-condensation activities of platenolide synthesis are indicated.

The DNA sequence of the *Streptomyces ambofaciens* platenolide synthase (*srnG*) genes was obtained by sequencing inserts of recombinant DNA subclones containing contiguous or overlapping DNA segments, which when considered together span the entire *srnG* region. All sequences representing *srnG* are fully contained in the overlapping cosmid clones pKC1080 and pKC1306 (Figure 6). The sequence can be obtained by subcloning and sequencing the fragments bounded by *NruI* sites at position 1, 0.3 kb, 8.2 kb, 14.1 kb, 20.2 kb, 29.5 kb, 31.4 kb, 41.1 kb, and 42.0 kb.

In order to obtain the *srnG* region on a single fragment, the 25.0 kb fragment bounded by the *NruI* site at position 1 and the *SfuI* site at 25.0 kb is isolated from a partial digestion of pKC1080 with restriction enzymes *NruI* and *SfuI*. The 17.8 kb DNA fragment bounded by the *SfuI* sites at 25.0 kb and 42.8 kb is isolated by digestion of pKC1306 with the restriction enzyme *SfuI*. The resulting fragments are ligated and cloned in an appropriate recombinant DNA vector. Clones containing the correct orientation of the two ligated fragments are identified by restriction enzyme mapping.

An exchange of tylactone polyketide synthase DNA with corresponding platenolide DNA was effected as follows in order to generate a novel polyketide structure.

A strain of *Streptomyces ambofaciens*, the organism that produces platenolide, was constructed with most of ORF 1 deleted. This ORF1-deficient strain produced no detectable platenolide. To confirm that the lack of ORF1 was the only deficiency in platenolide production, a construct containing ORF1, and not any functional activities of ORFs 2-5, was introduced into the ORF1-deficient strain on a vector that contains the site-specific integration function from the streptomycete phage ϕ C31. Integration of ORF1 at the ϕ C31 *att* site restored spiramycin production to parental levels, confirming that ORF1 codes for a functional protein and that ORFs 2-5 are expressed in the ORF1-deficient strain.

ORF1 of *tylG* is organized like *srnG* ORF1. DNA coding for a KS', an AT, and an ACP from *tyl*/ORF1 was exchanged with the corresponding region from *srnG* ORF1 by replacing an *EcoRI*-*Apal* fragment of *srnG* ORF1 with an *EcoRI*-*SfuI* fragment from *tyl*/ORF1, generating plasmid pKC1524. When pKC1524 was introduced into the ORF1-deficient strain, polyketide synthesis was restored. The products produced by this restored strain were indistinguishable from those produced by the parental strain of *Streptomyces ambofaciens* when analyzed by thin-layer chromatography and HPLC.

The hybrid ORF1 DNA sequence is SEQ ID NO:7 and the amino acid sequence of the ORF1-encoded polypeptide is SEQ ID NO:8. The rest of the DNA sequence of the hybrid molecule is identical to original *tylG* sequence and the polypeptides encoded by this remaining portion are therefore identical as well.

In order to simplify physical analysis of the putative novel polyketide, an *XhoI* fragment encoding sugar synthesis or addition was deleted from the restored. Deletion of this fragment led to a strain that produced only the lactone without any sugar residues added. When analyzed by NMR and mass spectroscopy, the isolated product made by this sugar-deficient strain was confirmed as 16-methylplatenolide, which is the structure that would be predicted from the incorporation of a propionate in place of the acetate normally utilized in platenolide synthesis.

SEQUENCE LISTING

5

10

(1) GENERAL INFORMATION:

15

- (i) APPLICANT: ELI LILLY AND COMPANY
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- (C) CITY: Indianapolis
- (D) STATE: Indiana
- (E) COUNTRY: United States of America
- (F) ZIP: 46285

20

(ii) TITLE OF INVENTION: POLYKETIDE SYNTHASE GENES

(iii) NUMBER OF SEQUENCES: 15

25

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30

- (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: Macintosh
 - (C) OPERATING SYSTEM: Macintosh 7.0
 - (D) SOFTWARE: Microsoft Word 5.1

35

40

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43280 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

45

(ii) MOLECULE TYPE: DNA (genomic)

50

- (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 816..14234

55

- (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 14351..19945

(ix) FEATURE:

(A) NAME/KEY: CDS
(B) LOCATION: 20010..31199

5

(ix) FEATURE:

(A) NAME/KEY: CDS
(B) LOCATION: 31232..36067

10

(ix) FEATURE:

(A) NAME/KEY: CDS
(B) LOCATION: 36249..41774

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

15	GAATTCGCGG TCCGCTCGGG TTCCGGTCCG TTTTCTGCTT CGAGCGTCTG TGTCGTCATC	60
	TCCGCTCTCT CATCGGGCTG GTGCGGGAAG GCATCCCGGT GCGGGGAGAC ATCCTGCTGC	120
	GGGAAGGAAT CCTGGTGGG GAAGCAACG ACTCGGGGAC GCGGGAGAAA GGGGAATCGG	180
20	CGGGAATTTT CCCC GCGCGG CGGGGACGGT GCCGGAGAAC AACGGCGGGG AAACAGCCCC	240
	CGGTCCGTGA CGACAACGGA AACTATGGTC CGCTTCCTCC GTCCACAAGG CGGAACCTGA	300
	CATAGTCCCC GCCACGCGG AAATCCCGCA CGGCGGCCCC CGGGCCGCGG CACCGGACCT	360
25	GACATAGCCT CGCCGGACCG CTCCGGTGCG GCCACCCCGT TGGTGTGGG TGATGAGGTA	420
	CCGGATCAGA GGAGAAAGCA CCATGCCCCG CCCCTCGGCC AGCGAACCGC GCGGGACCAC	480
30	CCGTTCCGCG ACCGCGCTGG CGCGCCGCGG TGGACCGGGC CGTAACTCCC CTGCGCCATC	540
	GAATACTTCG CCCCTCGAAT CCCTCACC GGAGTTCCA GGACCGCCCC TCGCTCTCGC	600
	CATACCGGAG AACGAACCG AACGGCACGG CGGAAAGCCC GTCCGCAATG CCCGGGACAT	660
35	TCCTGTGACC CGACAACAG GTTTGCGGAC ACGTTTCGCC GCAACGCTTG TTGGCAGGCT	720
	CACCGGCACG GCCCGCTGAC ACAGCTCGGT GACACGGCAG CCTGACGGGA AACCGCGGAA	780
40	GCCTCTGGAG TCCTCGCACA TTCCGGAGAG AACAG GTG TCT TCC GCG CTG CGG	833
	Met Ser Ser Ala Leu Arg	
	1 5	
	CGC GCG GTG CAA TCC AAC TGT GGC TAC GGA GAC CTC ATG ACC TCG AAC	881
	Arg Ala Val Gln Ser Asn Cys Gly Tyr Gly Asp Leu Met Thr Ser Asn	
45	10 15 20	
	ACC GCT GCA CAG AAC ACC GGC GAC CAG GAA GAC GTC GAC GGT CCC GAC	929
	Thr Ala Ala Gln Asn Thr Gly Asp Gln Glu Asp Val Asp Gly Pro Asp	
	25 30 35	
50	AGC ACA CAC GGT GGG GAG ATC GCC GTC GTG GGA ATG TCG TGC CGT CTG	977
	Ser Thr His Gly Gly Glu Ile Ala Val Val Gly Met Ser Cys Arg Leu	
	40 45 50	
55	CCG GGC GCG GCC GGT GTC GAG GAA TTC TGG GAA CTG CTG CGC AGC GGA	1025
	Pro Gly Ala Ala Gly Val Glu Glu Phe Trp Glu Leu Leu Arg Ser Gly	
	55 60 65 70	

5	CGC GGT ATG CCC ACC CGT CAG GAC GAC GGC ACC TGG CGG GCC GCC CTG	1073
	Arg Gly Met Pro Thr Arg Gln Asp Asp Gly Thr Trp Arg Ala Ala Leu	
	75 80 85	
	GAG GAC CAC GCC GGC TTC GAC GCC GGG TTC TTC GGC ATG AAC GCC CGG	1121
	Glu Asp His Ala Gly Phe Asp Ala Gly Phe Phe Gly Met Asn Ala Arg	
10	CAG GCC GCC GCC ACC GAC CCG CAG CAC CGA CTG ATG CTG GAA CTC GGA	1169
	Gln Ala Ala Ala Thr Asp Pro Gln His Arg Leu Met Leu Glu Leu Gly	
	105 110 115	
	TGG GAG GCA CTG GAG GAC GCG GGC ATC GTC CCC GGC GAT CTC ACC GGC	1217
	Trp Glu Ala Leu Glu Asp Ala Gly Ile Val Pro Gly Asp Leu Thr Gly	
15	ACC GAC ACC GGA GTC TTC GCC GGC GTG GCG TCC GAC GAC TAT GCC GTT	1265
	Thr Asp Thr Gly Val Phe Ala Gly Val Ala Ser Asp Asp Tyr Ala Val	
	135 140 145 150	
	CTC ACC CGC CGT TCC GCC GTC TCC GCC GGG GGA TAC ACC GCC ACG GGG	1313
	Leu Thr Arg Arg Ser Ala Val Ser Ala Gly Gly Tyr Thr Ala Thr Gly	
20	CTG CAC CGC GCC CTG GCC GCC AAC CGC CTC TCC CAC TTC CTG GGC CTG	1361
	Leu His Arg Ala Leu Ala Ala Asn Arg Leu Ser His Phe Leu Gly Leu	
	170 175 180	
	CGC GGC CCC AGC CTG GTC GTC GAC TCG GCC CAG TCC GCC TCA CTG GTG	1409
	Arg Gly Pro Ser Leu Val Val Asp Ser Ala Gln Ser Ala Ser Leu Val	
25	GCC GTC CAG CTC GCC TGC GAG AGT CTG CGC CGG GGT GAG ACG TCG CTC	1457
	Ala Val Gln Leu Ala Cys Glu Ser Leu Arg Arg Gly Glu Thr Ser Leu	
	200 205 210	
	GCC GTC GCG GGC GGT GTC AAC CTC ATC CTC ACC GAG GAG AGC ACC ACC	1505
	Ala Val Ala Gly Gly Val Asn Leu Ile Leu Thr Glu Glu Ser Thr Thr	
30	GTC ATG GAG CGT ATG GGA GCG CTC TCA CCC GAC GGC CGC TGC CAC ACC	1553
	Val Met Glu Arg Met Gly Ala Leu Ser Pro Asp Gly Arg Cys His Thr	
	235 240 245	
	TTC GAC GCC CGC GCC AAC GGC TAC GTA CGC GGC GAG GGC GGC GGA GCC	1601
	Phe Asp Ala Arg Ala Asn Gly Tyr Val Arg Gly Glu Gly Gly Gly Ala	
35	GTC GTG CTC AAG CCA CTG GAC GCC GCA CTC GCC GAC GGC GAC CGC GTG	1649
	Val Val Leu Lys Pro Leu Asp Ala Ala Leu Ala Asp Gly Asp Arg Val	
	265 270 275	
	TAC TGC GTC ATC AAG GGA GGT GCC GTC AAC AAC GAC GGC GGC GGC GCG	1697
	Tyr Cys Val Ile Lys Gly Gly Ala Val Asn Asn Asp Gly Gly Gly Ala	
40	AGC CTC ACC ACT CCC GAC CGG GAG GCG CAG GAA GCT GTG CTG CGC CAG	1745
	Ser Leu Thr Thr Pro Asp Arg Glu Ala Gln Glu Ala Val Leu Arg Gln	
	295 300 305 310	

5	GCC TAC CCG CCG GCG GGC GTC AGC ACC GGC GCC GTC CGC TAC GTC GAG Ala Tyr Arg Arg Ala Gly Val Ser Thr Gly Ala Val Arg Tyr Val Glu 315 320 325	1793
10	CTG CAC GGG ACC GGC ACC CCG GCC GGC GAC CCC GTC GAG GCG GCC GCA Leu His Gly Thr Gly Thr Arg Ala Gly Asp Pro Val Glu Ala Ala Ala 330 335 340	1841
15	CTG GGC GCC GTG CTC GGG GCG GGG GCG GAC AGC GGC CGC AGC ACG CCG Leu Gly Ala Val Leu Gly Ala Gly Ala Asp Ser Gly Arg Ser Thr Pro 345 350 355	1889
20	CTC GCC GTC GGC TCG GTG AAG ACC AAC GTC GGC CAT CTG GAG GGC GCG Leu Ala Val Gly Ser Val Lys Thr Asn Val Gly His Leu Glu Gly Ala 360 365 370	1937
25	GCG GGC ATC GTC GGA CTG ATC AAG GCC ACG CTG TGC GTA CCG AAG GGC Ala Gly Ile Val Gly Leu Ile Lys Ala Thr Leu Cys Val Arg Lys Gly 375 380 385 390	1985
30	GAA CTC GTC CCC AGC CTC AAC TTC AGC ACG CCG AAC CCT GAC ATC CCC Glu Leu Val Pro Ser Leu Asn Phe Ser Thr Pro Asn Pro Asp Ile Pro 395 400 405	2033
35	CTC GAC GAC CTG CCG CTG CCG GTC CAG ACC GAA CCG CAG GAG TGG AAC Leu Asp Asp Leu Arg Leu Arg Val Gln Thr Glu Arg Gln Glu Trp Asn 410 415 420	2081
40	GAG GAG GAC GAC CCG CCG CCG GTG GCC GGC GTC TCC TCC TTC GGT ATG Glu Glu Asp Asp Arg Pro Arg Val Ala Gly Val Ser Ser Phe Gly Met 425 430 435	2129
45	GGC GGA ACC AAT GTC CAC CTC GTG ATC GCG GAG GCT CCG GCC GCG GCG Gly Gly Thr Asn Val His Leu Val Ile Ala Glu Ala Pro Ala Ala Ala 440 445 450	2177
50	GGG TCC TCC CCG GCG GCG GGT TCG GGC GCT GGT TCC GGT GCC GGT ATC Gly Ser Ser Gly Ala Gly Gly Ser Gly Ala Gly Ser Gly Ala Gly Ile 455 460 465 470	2225
55	AGC GCT GTT TCT GGT GTG GTG CCG GTG GTG GTT TCG GCG CGT TCG CCG Ser Ala Val Ser Gly Val Val Pro Val Val Val Ser Gly Arg Ser Arg 475 480 485	2273
60	GTG GTG GTG CCG GAG GCT GCG GGC CCG TTG GCG GAG GTG GTG GAG GCC Val Val Val Arg Glu Ala Ala Gly Arg Leu Ala Glu Val Val Glu Ala 490 495 500	2321
65	GGT GGT GTG GGG CTG GCG GAT GTG GCG GTG ACG ATG GCG GAC CCG TCG Gly Gly Val Gly Leu Ala Asp Val Ala Val Thr Met Ala Asp Arg Ser 505 510 515	2369
70	CGG TTT GGG TAT CCG GCG GTT GTG CTG GCT CCG GGT GAG GCT GAG CTT Arg Phe Gly Tyr Arg Ala Val Val Leu Ala Arg Gly Glu Ala Glu Leu 520 525 530	2417
75	GCC GGG CGT TTG CCG GCG TTG GCG GGG GGT GAT CCG GAC GCG GGT GTG Ala Gly Arg Leu Arg Ala Leu Ala Gly Gly Asp Pro Asp Ala Gly Val 535 540 545 550	2465

5	GTC ACC GGT GCG GTT CTC GAC GGT GGT GTG GTT GTC GGT GCT GCC CCC Val Thr Gly Ala Val Leu Asp Gly Gly Val Val Val Gly Ala Ala Pro 555 560 565	2513
10	GGC GGT GCC GGT GCT GCC GGT GGT GCC GGT GCT GCC GGT GGT GCC GGT Gly Gly Ala Gly Ala Ala Gly Gly Ala Gly Ala Gly Thr Ala Gly 570 575 580	2561
15	GGT GGG GGC GTG GTG TTG GTT TTC CCT GGT CAG GGG ACG CAG TGG GTG Gly Gly Gly Val Val Leu Val Phe Pro Gly Gln Gly Thr Gln Trp Val 585 590 595	2609
20	GGG ATG GGT GCG GGG CTG CTG GGG TCT TCG GAG GTG TTT GCG GCG TCG Gly Met Gly Ala Gly Leu Leu Gly Ser Ser Glu Val Phe Ala Ala Ser 600 605 610	2657
25	ATG CCG GAG TGT GCG CCG GCG CTG AGT GTT CAT GTG GGG TGG GAT TTG Met Arg Glu Cys Ala Arg Ala Leu Ser Val His Val Gly Trp Asp Leu 615 620 625 630	2705
30	CTG GAG GTG GTG TCG GCG GGG GCC GGG TTG GAG CCG GTG GAT GTG GTG Leu Glu Val Val Ser Gly Gly Ala Gly Leu Glu Arg Val Asp Val Val 635 640 645	2753
35	CAG CCG GTG ACG TGG GCG GTG ATG GTG TCG CTG GCC CCG TAC TGG CAG Gln Pro Val Thr Trp Ala Val Met Val Ser Leu Ala Arg Tyr Trp Gln 650 655 660	2801
40	GCG ATG GGT GTG GAC GTG GCT GCG GTG GTG GGT CAT TCC CAG GGG GAG Ala Met Gly Val Asp Val Ala Ala Val Val Gly His Ser Gln Gly Glu 665 670 675	2849
45	ATC GCC GCT GCC ACG GTG GCG GGG GCG TTG TCG CTG GAG GAT GCG GCG Ile Ala Ala Ala Thr Val Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala 680 685 690	2897
50	GCT GTG GTC GCT CTG CCG GCG GGG TTG ATT GGC CCG TAT CTG GCG GGT Ala Val Val Ala Leu Arg Ala Gly Leu Ile Gly Arg Tyr Leu Ala Gly 695 700 705 710	2945
55	CGT GGT GCG ATG GCG GCT GTT CCG CTG CCT GCC GCG GAG GTC GAG GCC Arg Gly Ala Met Ala Ala Val Pro Leu Pro Ala Gly Glu Val Glu Ala 715 720 725	2993
60	GGG CTG GCG AAG TGG CCG GGT GTG GAG GTC GCG GCG GTC AAC GGT CCG Gly Leu Ala Lys Trp Pro Gly Val Glu Val Ala Ala Val Asn Gly Pro 730 735 740	3041
65	GCG TCT ACG GTG GTT TCC GGG GAT CCG CCG GCG GTG GCC GGT TAT GTG Ala Ser Thr Val Val Ser Gly Asp Arg Arg Ala Val Ala Gly Tyr Val 745 750 755	3089
70	GCC GTC TGT CAG GCG GAG GGT GTG CAG GCC CCG TTG ATA CCG GTG GAC Ala Val Cys Gln Ala Glu Gly Val Gln Ala Arg Leu Ile Pro Val Asp 760 765 770	3137
75	TAC GCC TCT CAC TCC CCG CAT GTG GAG GAC CTG AAG GGC GAG TTG GAG Tyr Ala Ser His Ser Arg His Val Glu Asp Leu Lys Gly Glu Leu Glu 775 780 785 790	3185

	CGG GTG CTG TCC GGT ATC CGC CCC CGC AGT CCG CCG GTG CCG GTG TGT	3233
	Arg Val Leu Ser Gly Ile Arg Pro Arg Ser Pro Arg Val Pro Val Cys	
	795 800 805	
5	TCC ACC GTC GCC GGA GAG CAG CCG GGC GAG CCG GTT TTC GAT GCG GGG	3281
	Ser Thr Val Ala Gly Glu Gln Pro Gly Glu Pro Val Phe Asp Ala Gly	
	810 815 820	
10	TAT TGG TTC CGT AAT CTG CCG AAC CCG GTT GAG TTC TCC GCG GTG GTC	3329
	Tyr Trp Phe Arg Asn Leu Arg Asn Arg Val Glu Phe Ser Ala Val Val	
	825 830 835	
	GGT GGT TTG TTG GAG GAG GGC CAC CGT CCG TTC ATC GAG GTC AGT GCC	3377
	Gly Gly Leu Leu Glu Glu Gly His Arg Arg Phe Ile Glu Val Ser Ala	
15	840 845 850	
	CAC CCG GTA CTC GTC CAT GCG ATC GAG CAG ACG GCC GAG GCC GCG GAC	3425
	His Pro Val Leu Val His Ala Ile Glu Gln Thr Ala Glu Ala Ala Asp	
	855 860 865 870	
20	CGG AGT GTC CAT GCC ACC GGG ACC CTG CCG CCG CAG GAC GAC AGC CCG	3473
	Arg Ser Val His Ala Thr Gly Thr Leu Arg Arg Gln Asp Asp Ser Pro	
	875 880 885	
25	CAC CCG CTG CTG ACC TCC ACC GCC GAG GCC TGG GCC CAC GGC GCC ACC	3521
	His Arg Leu Leu Thr Ser Thr Ala Glu Ala Trp Ala His Gly Ala Thr	
	890 895 900	
	CTC ACC TGG GAC CCC GCC CTG CCC CCA GGC CAC CTC ACC ACC CTC CCC	3569
	Leu Thr Trp Asp Pro Ala Leu Pro Pro Gly His Leu Thr Thr Leu Pro	
30	905 910 915	
	ACC TAC CCC TTC AAC CAC CAC CAC TAC TGG CTC GAC ACC ATT GAC GGG	3617
	Thr Tyr Pro Phe Asn His His His Tyr Trp Leu Asp Thr Ile Asp Gly	
	920 925 930	
35	GGC GGA GGG GAC GAC GCG ACC CAG GAG AAG GAG AGC GGC CCT CTG ACG	3665
	Gly Gly Gly Asp Asp Ala Thr Gln Glu Lys Glu Ser Gly Pro Leu Thr	
	935 940 945 950	
	CGG GAA CTG CGT GGG CTG CCG TCC TCT CAG AAG CAA CTG GGT TTC CTG	3713
	Arg Glu Leu Arg Gly Leu Pro Ser Ser Gln Lys Gln Leu Gly Phe Leu	
40	955 960 965	
	CTC GAT CTG GTG TGC CCG CAC ACG GCC GTC GTA CTC GGC CTG GAC ACG	3761
	Leu Asp Leu Val Cys Arg His Thr Ala Val Val Leu Gly Leu Asp Thr	
45	970 975 980	
	GCC GCC GAG GTG GAC CCG GAC CTG TCC TTC AAG AAG CAG GGC ATC CAG	3809
	Ala Ala Glu Val Asp Pro Asp Leu Ser Phe Lys Lys Gln Gly Ile Gln	
	985 990 995	
50	TCC ATG ACC GGC GTC GAG CTG CGC AAC AGG CTG CTG ACC GAG ACC GGC	3857
	Ser Met Thr Gly Val Glu Leu Arg Asn Arg Leu Leu Thr Glu Thr Gly	
	1000 1005 1010	
55	CTG GCA TTG CCC ACC ACC CTC GTC TAC GAC CCG CCC ACC CCT CGC GCC	3905
	Leu Ala Leu Pro Thr Thr Leu Val Tyr Asp Arg Pro Thr Pro Arg Ala	
	1015 1020 1025 1030	

	CTG GCG CAG TTC CTC CAC ACC GAG TTG CTC GAC GGC TCC CCC TCG GGC	3953
	Leu Ala Gln Phe Leu His Thr Glu Leu Leu Asp Gly Ser Pro Ser Gly	
	1035 1040 1045	
5	TCC GTC CTC GCA CCG GCG CAG AAG AGC TTC GAA GCC CAG GAG CCG ATC	4001
	Ser Val Leu Ala Pro Ala Gln Lys Ser Phe Glu Ala Gln Glu Pro Ile	
	1050 1055 1060	
10	GCG GTG GTG GGT ATG GGG TGC CCG TTC CCC GGT GGG GTG GGT TCG CCG	4049
	Ala Val Val Gly Met Gly Cys Arg Phe Pro Gly Gly Val Gly Ser Pro	
	1065 1070 1075	
	GAG GCG TTG TGG CCG TTG GTG GTG GAG GGG GTG GAC GCG GTT TCC CCG	4097
	Glu Ala Leu Trp Arg Leu Val Val Glu Gly Val Asp Ala Val Ser Pro	
15	1080 1085 1090	
	TTT CCC GGT GAT CGT GGC TGG GAT GTG GAG GGG TTG TAC GAC CCG GAG	4145
	Phe Pro Gly Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Glu	
	1095 1100 1105 1110	
20	CCG GGT GTG CCG GGG AAG TCG TAT GTG CCG GAG GGG GGT TTT CTG CAT	4193
	Pro Gly Val Ala Lys Ser Tyr Val Arg Glu Gly Gly Phe Leu His	
	1115 1120 1125	
25	GAT GCG GCG GAG TTC GAT GCG GAG TTC TTC GGG ATT TCG CCG CGT GAG	4241
	Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu	
	1130 1135 1140	
	GCG GTG GCG ATG GAT CCG CAG CAG CCG CTG TTG CTG GAG ACC TCC TGG	4289
	Ala Val Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp	
30	1145 1150 1155	
	GAG GCG ATC GAG CCG GCG GGT ATC GAC CCG CAC TCG CTG CAC GGC AGC	4337
	Glu Ala Ile Glu Arg Ala Gly Ile Asp Pro His Ser Leu His Gly Ser	
	1160 1165 1170	
35	CGC ACC GGC GTC TAC GCC GGC GTG ATG CCG CAG GAA TAC GGA CCT CCG	4385
	Arg Thr Gly Val Tyr Ala Gly Val Met Pro Gln Glu Tyr Gly Pro Arg	
	1175 1180 1185 1190	
40	CTC GCC GAA GGA GCG GAA GGC AGC GAC GGC TAC CTC CTC ACC GGT ACC	4433
	Leu Ala Glu Gly Ala Glu Gly Ser Asp Gly Tyr Leu Leu Thr Gly Thr	
	1195 1200 1205	
	TCG GGG AGT GTG GTG TCG GGG CGT GTG GCC TAC ACG CTG GGG CTG GAG	4481
	Ser Gly Ser Val Val Ser Gly Arg Val Ala Tyr Thr Leu Gly Leu Glu	
45	1210 1215 1220	
	GGT CCG GCC GTG ACC GTG GAT ACG GCG TGT TCG TCG TCG TTG GTG GCG	4529
	Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala	
	1225 1230 1235	
50	TTG CAT CTG CCG GTG CAG GCG TTG CCG GGT GGC GAG TGT GAC ATG GCG	4577
	Leu His Leu Ala Val Gln Ala Leu Arg Gly Gly Glu Cys Asp Met Ala	
	1240 1245 1250	
55	TTG GCC GGT GGT GTG ACG GTG ATG GCC GGG CCG GGG ATG TTC GTG GAG	4625
	Leu Ala Gly Gly Val Thr Val Met Ala Gly Pro Gly Met Phe Val Glu	
	1255 1260 1265 1270	

	TTT TCG CGG CAG CGG GGG TTG GCG GCC GAT GGG CGG TGC AAG GCG TTC	4673
	Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe	
	1275 1280 1285	
5	GCG GAT GGG GCG GAT GGG ACC GCT TGG GCC GAG GGT GCG GGG GTG GTG	4721
	Ala Asp Gly Ala Asp Gly Thr Ala Trp Ala Glu Gly Ala Gly Val Val	
	1290 1295 1300	
10	CTG GTG GAG CGG TTG TCG GAT GCC CGG CGG TTG GGG CAT CCG GTG TTG	4769
	Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Leu Gly His Pro Val Leu	
	1305 1310 1315	
	GCG GTG GTG TGT GGG TCG GCG GTG AAT CAG GAC GGT GCG TCG AAT GGT	4817
	Ala Val Val Cys Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly	
15	1320 1325 1330	
	TTG ACG GCG CCG AGT GGT CCG TCG CAG GAG CGG GTG ATT CGT CAG GCG	4865
	Leu Thr Ala Pro Ser Gly Pro Ser Gln Glu Arg Val Ile Arg Gln Ala	
	1335 1340 1345 1350	
20	TTG GGG AAT GCG CGG TTG ACG GTG GCG GAT GTG GAT GTG GTG GAG GCG	4913
	Leu Gly Asn Ala Arg Leu Thr Val Ala Asp Val Asp Val Val Glu Ala	
	1355 1360 1365	
25	CAT GGG ACG GGG ACG CGG CTG GGT GAT CCG ATC GAG GCG CAG GCG TTG	4961
	His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu	
	1370 1375 1380	
	CTG GGG ACG TAT GGG CGG GAT CGT GAT GGT GGG CGT CCG GTG TGG TTG	5009
	Leu Gly Thr Tyr Gly Arg Asp Arg Asp Gly Gly Arg Pro Val Trp Leu	
30	1385 1390 1395	
	GGG TCG TTG AAG TCG AAT ATT GGT CAT GCT CAG GCG GCT GCG GGG GTG	5057
	Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Gly Val	
	1400 1405 1410	
35	GCT GGT GTG ATC AAG ATG GTG TTG GCG ATG CGG TAT GGG TGG TTG CCG	5105
	Ala Gly Val Ile Lys Met Val Leu Ala Met Arg Tyr Gly Trp Leu Pro	
	1415 1420 1425 1430	
	CGG ACG TTG CAT GTG GAT GAG CCG AGC CGG CAT GTG GAC TGG TCG GCT	5153
40	Arg Thr Leu His Val Asp Glu Pro Ser Arg His Val Asp Trp Ser Ala	
	1435 1440 1445	
	GGT GGT GTG TGG TTG CTG ACC GAG GCG CGG GAG TGG CCG GGG GTG GAC	5201
	Gly Gly Val Trp Leu Leu Thr Glu Ala Arg Glu Trp Pro Gly Val Asp	
45	1450 1455 1460	
	CGG CCG CGT CCG GCG GCG GTC TCC GCC TTT GGT GTC AGT GGT ACC AAC	5249
	Arg Pro Arg Arg Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn	
	1465 1470 1475	
50	GCC CAT CTG ATC CTC GAA GCC CCC GAC ACC GCC GAG GCG GAG AGC GCC	5297
	Ala His Leu Ile Leu Glu Ala Pro Asp Thr Ala Glu Ala Glu Ser Ala	
	1480 1485 1490	
55	ACG ACC CCG GTC CGC TCT GAG GTG TCG GAG TCT GCT GCG GTC CTC GAT	5345
	Thr Thr Pro Val Arg Ser Glu Val Ser Glu Ser Ala Ala Val Leu Asp	
	1495 1500 1505 1510	

	GCC CGC AGT GGT GTG GTG CCG GTG GTG GTT TCG GGG CGT TCG CGG GTG	5393
	Ala Arg Ser Gly Val Val Pro Val Val Val Ser Gly Arg Ser Arg Val	
	1515 1520 1525	
5	GTG GTG CGG GAG GCT GCG GGC CGG TTG GCG GAG GTG GTG GAG GCC GGT	5441
	Val Val Arg Glu Ala Ala Gly Arg Leu Ala Glu Val Val Glu Ala Gly	
	1530 1535 1540	
10	GGT GTG GGG CTG GCG GAT GTG GCG GTG ACG ATC GCG GGC CGG TCG CGG	5489
	Gly Val Gly Leu Ala Asp Val Ala Val Thr Met Ala Gly Arg Ser Arg	
	1545 1550 1555	
15	TTT GGG TAT CGG GCG GTT GTG CTG GCT CGG GGT GAG GCT GAG CTT GCC	5537
	Phe Gly Tyr Arg Ala Val Val Leu Ala Arg Gly Glu Ala Glu Leu Ala	
	1560 1565 1570	
20	GGG CGT TTG CGG GCG TTG GCG GGG GGT GAT CCG GAC GCG GGT GTG GTC	5585
	Gly Arg Leu Arg Ala Leu Ala Gly Gly Asp Pro Asp Ala Gly Val Val	
	1575 1580 1585 1590	
25	ACC GGT GCG GTG GTG GAC CCG GAG ACG GGG TCC GGT GGT GGG GGC GTG	5633
	Thr Gly Ala Val Val Asp Pro Glu Thr Gly Ser Gly Gly Gly Gly Val	
	1595 1600 1605	
30	GTG TTG GTT TTC CCT GGT CAG GGG ACG CAG TGG GTG GGG ATG GGT GCG	5681
	Val Leu Val Phe Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala	
	1610 1615 1620	
35	GGG CTG CTG GGG TCT TCG GAG GTG TTT GCG GCG TCG ATG CGG GAG TGT	5729
	Gly Leu Leu Gly Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys	
	1625 1630 1635	
40	GCG CGG GCG CTG AGT GTT CAT GTG GAG TGG GAT TTG CTG GAG GTG GTG	5777
	Ala Arg Ala Leu Ser Val His Val Glu Trp Asp Leu Leu Glu Val Val	
	1640 1645 1650	
45	TCG GGC GGG GCC GGG TTG GAG CGG GTG GAT GTG GTG CAG CCC GTG ACG	5825
	Ser Gly Gly Ala Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr	
	1655 1660 1665 1670	
50	TGG GCG GTG ATG GTG TCG CTG GCC CGG TAC TGG CAG GCG ATG GGT GTG	5873
	Trp Ala Val Met Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val	
	1675 1680 1685	
55	GAC GTG GCT GCG GTG GTG GGT CAT TCC CAG GGG GAG ATC GCT GCT GCC	5921
	Asp Val Ala Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala	
	1690 1695 1700	
60	ACG GTG GCG GGG GCG TTG TCG CTG GAG GAT GCG GCG GCT GTG GTC GCT	5969
	Thr Val Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala	
	1705 1710 1715	
65	CTG CGG GCG GGG TTG ATT GGC CGG TAT CTG GCG GGT CGT GGT GCG ATG	6017
	Leu Arg Ala Gly Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met	
	1720 1725 1730	
70	GCG GCT GTT CCG CTG CCT GCC GGC GAG GTC GAG GCC GGG CTG GCG AAG	6065
	Ala Ala Val Pro Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys	
	1735 1740 1745 1750	

	TGG CCG GGT GTG GAG GTC GCG GCG GTC AAC GGT CCG GCG TCC ACG GTG	6113
	Trp Pro Gly Val Glu Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val	
	1755 1760 1765	
5	GTT TCC GGG GAT CCG CCG GCG GTG GCC GGT TAT GTG GCC GTC TGT CAG	6161
	Val Ser Gly Asp Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln	
	1770 1775 1780	
10	GCG GAG GGT GTG CAG GCT CCG TTG ATA CCG GTG GAC TAC GCC TCT CAC	6209
	Ala Glu Gly Val Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His	
	1785 1790 1795	
	TCC CGC CAT GTG GAG GAC CTG AAG GGC GAG TTG GAG CCG GTG CTG TCC	6257
15	Ser Arg His Val Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser	
	1800 1805 1810	
	GGT ATC CCG CCC CCG AGT CCG CCG GTG CCG GTG TGT TCC ACC GTC GCC	6305
	Gly Ile Arg Pro Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala	
	1815 1820 1825 1830	
20	GGA GAG CAG CCG GGC GAG CCG GTT TTC GAT GCG GGG TAT TGG TTC CGT	6353
	Gly Glu Gln Pro Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg	
	1835 1840 1845	
25	AAT CTG CCG AAC CCG GTT GAG TTC TCC GCG GTG GTC GGT GGT TTG TTG	6401
	Asn Leu Arg Asn Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu	
	1850 1855 1860	
	GAG GAG GGC CAC CGT CCG TTC ATC GAG GTC AGT GCC CAC CCG GTA CTC	6449
30	Glu Glu Gly His Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu	
	1865 1870 1875	
	GTC CAT GCG ATC GAG CAG ACG GCC GAG GCC GCG GAC CCG AGT GTC CAT	6497
	Val His Ala Ile Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His	
	1880 1885 1890	
35	GCC ACC GGG ACC CTG CCG CCG CAG GAC GAC AGC CCG CAC CCG CTG CTG	6545
	Ala Thr Gly Thr Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu	
	1895 1900 1905 1910	
40	ACC TCC ACC GCC GAG GCC TGG GCC CAC GGC GCC ACC CTC ACC TGG GAC	6593
	Thr Ser Thr Ala Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp	
	1915 1920 1925	
	CCC GCC CTG CCC CCA GGC CAC CTC ACC ACC CTC CCC ACC TAC CCC TTC	6641
45	Pro Ala Leu Pro Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe	
	1930 1935 1940	
	AAC CAC CAC CAC TAC TGG CTC GAC ACC ACC CCC ACC ACC CCC GCG ACG	6689
	Asn His His His Tyr Trp Leu Asp Thr Thr Pro Thr Thr Pro Ala Thr	
	1945 1950 1955	
50	ACC ACC CAG AGC CCC ACC GAT GCC TGG CCG TAC CCG GTC ACC TGG AAA	6737
	Thr Thr Gln Ser Pro Thr Asp Ala Trp Arg Tyr Arg Val Thr Trp Lys	
	1960 1965 1970	
55	GCC CTG ACC GAA TCC TCC CCC GTC CCG CCT CAC TCC ATC GGT CCG TGC	6785
	Ala Leu Thr Glu Ser Ser Pro Val Arg Pro His Ser Ile Gly Arg Cys	
	1975 1980 1985 1990	

5	CTC CTC GTT GCA CCC CCG ACC ACC GAC GGC GAG CTC CTC GAC GGA CTG Leu Leu Val Ala Pro Pro Thr Thr Asp Gly Glu Leu Leu Asp Gly Leu 1995 2000 2005	6833
10	ACA ACG GTG TTG TCC GAG CGC GGT GCC TCC GTC GCC CGC CTT GAG GTG Thr Thr Val Leu Ser Glu Arg Gly Ala Ser Val Ala Arg Leu Glu Val 2010 2015 2020	6881
15	CCC ATC GGC GCG CGG CGT GCC GAG GTC GCC GAA CTG CTC AAG CCC TCC Pro Ile Gly Ala Arg Arg Ala Glu Val Ala Glu Leu Leu Lys Pro Ser 2025 2030 2035	6929
20	ATG GAG TCA GCG GGG GAG GAG AAC ACC ACC GTC GTC TCG CTT CTC GGT Met Glu Ser Ala Gly Glu Glu Asn Thr Thr Val Val Ser Leu Leu Gly 2040 2045 2050	6977
25	CTG GTG CCC TCC ACG GAC GCG GTC AGG ACG TCG ATA GCG CTC CTC CAG Leu Val Pro Ser Thr Asp Ala Val Arg Thr Ser Ile Ala Leu Leu Gln 2055 2060 2065 2070	7025
30	GCG GTC TCC GAC ATC GGC GTC CCG GCC GCC AGG GTC TGG GCG CTG ACG Ala Val Ser Asp Ile Gly Val Pro Ala Ala Arg Val Trp Ala Leu Thr 2075 2080 2085	7073
35	CGG AGG GCC GTG GCC GTG GTT CCC GGG GAG ACG CCG CAG GAC GCG GGG Arg Arg Ala Val Ala Val Val Pro Gly Glu Thr Pro Gln Asp Ala Gly 2090 2095 2100	7121
40	GCC CAG TTG TGG GGC TTC GGA CGA GTG GCG GCC CTT GAA CTC CCG GAT Ala Gln Leu Trp Gly Phe Gly Arg Val Ala Ala Leu Glu Leu Pro Asp 2105 2110 2115	7169
45	ATC TGG GGC GGC TTG ATC GAT CTG CCG GAG ACA GCG GAG CTG ACG CGG Ile Trp Gly Gly Leu Ile Asp Leu Pro Glu Thr Ala Glu Leu Thr Arg 2120 2125 2130	7217
50	ACG CCG GAG ACC TCA CAG CCC CCA CAG ACC CCG GAG AGG CTG CCG CAG Thr Pro Glu Thr Ser Gln Pro Pro Gln Thr Pro Glu Arg Leu Pro Gln 2135 2140 2145 2150	7265
55	ACT CCG AAC CGA CGC GCC CTT GAG CTT GCT GCC GCC GTC CTC GCC GGC Thr Pro Asn Arg Arg Ala Leu Glu Leu Ala Ala Ala Val Leu Ala Gly 2155 2160 2165	7313
60	CGC GAC GGC GAG GAC CAG GTC GCC GTG CGC GCC TCG GGG ATC TAC GGG Arg Asp Gly Glu Asp Gln Val Ala Val Arg Ala Ser Gly Ile Tyr Gly 2170 2175 2180	7361
65	CGG CGG GTG TCG CGG GCC GCG GCA GCG GGG GCC GCC TCC TGG CAG CCG Arg Arg Val Ser Arg Ala Ala Ala Ala Gly Ala Ala Ser Trp Gln Pro 2185 2190 2195	7409
70	TCC GGC ACG GTG CTG ATC ACC GGC GGC ATG GGT GCC ATC GGC AGG CGG Ser Gly Thr Val Leu Ile Thr Gly Gly Met Gly Ala Ile Gly Arg Arg 2200 2205 2210	7457
75	CTC GCC CGC AGG CTG GCG GCC GAG GGA GCC GAA CGC CTG GTC CTC ACC Leu Ala Arg Arg Leu Ala Ala Glu Gly Ala Glu Arg Leu Val Leu Thr 2215 2220 2225 2230	7505

5	AGC CGT CGC GGA CCG GAG GCG CCG GGC GCC GCC GAA CTC GCC GAG GAA	7553
	Ser Arg Arg Gly Pro Glu Ala Pro Gly Ala Ala Glu Leu Ala Glu Glu	
	2235 2240 2245	
	CTG CGA GGA CAT GGC TGC GAG GTC GTG CAC GCG GCC TGT GAC GTG GCC	7601
	Leu Arg Gly His Gly Cys Glu Val Val His Ala Ala Cys Asp Val Ala	
10	2250 2255 2260	
	GAG CGT GAT GCG CTC GCC GCG CTC GTC ACC GCG TAT CCG CCG AAC GCC	7649
	Glu Arg Asp Ala Leu Ala Ala Leu Val Thr Ala Tyr Pro Pro Asn Ala	
	2265 2270 2275	
	GTC TTC CAC ACC GCC GGG ATT CTG GAC GAC GCG GTG ATC GAC ACG CTG	7697
15	Val Phe His Thr Ala Gly Ile Leu Asp Asp Ala Val Ile Asp Thr Leu	
	2280 2285 2290	
	TCA CCG GAG AGC TTC GAG ACC GTC CCG GGG CCG AAG GTG TGC GGC GCG	7745
	Ser Pro Glu Ser Phe Glu Thr Val Arg Gly Ala Lys Val Cys Gly Ala	
	2295 2300 2305 2310	
20	GAG CTG CTG CAC CAA CTG ACT GCG GAC ATA AAA GGG TTG GAC GCC TTC	7793
	Glu Leu Leu His Gln Leu Thr Ala Asp Ile Lys Gly Leu Asp Ala Phe	
	2315 2320 2325	
	GTC CTC TTC TCC TCC GTC ACC GGC ACA TGG GGC AAC GCC GGC CAG GGT	7841
	Val Leu Phe Ser Ser Val Thr Gly Thr Trp Gly Asn Ala Gly Gln Gly	
25	2330 2335 2340	
	GCG TAC GCC GCC GCC AAC GCC GCG CTC GAC GCC CTC GCC GAG CGT CGC	7889
	Ala Tyr Ala Ala Ala Asn Ala Ala Leu Asp Ala Leu Ala Glu Arg Arg	
	2345 2350 2355	
	CGT GCC GCC GGA CTG CCC GCG ACC TCC GTC GCC TGG GGC CTT TGG GGC	7937
30	Arg Ala Ala Gly Leu Pro Ala Thr Ser Val Ala Trp Gly Leu Trp Gly	
	2360 2365 2370	
	GGG GGA GGC ATG GCG GCG GGT GCG GGC GAG GAG AGT CTG TCG CGG CGA	7985
	Gly Gly Gly Met Ala Ala Gly Ala Gly Glu Glu Ser Leu Ser Arg Arg	
	2375 2380 2385 2390	
35	GGG CTG CGG GCC ATG GAC CCC GAC GCG GCC GTC GAC GCG CTC CTG GGC	8033
	Gly Leu Arg Ala Met Asp Pro Asp Ala Ala Val Asp Ala Leu Leu Gly	
	2395 2400 2405	
	GCC ATG GGC AGG AAC GAC GTG TGC GTC ACT GTC GTC GAC GTC GAC TGG	8081
	Ala Met Gly Arg Asn Asp Val Cys Val Thr Val Val Asp Val Asp Trp	
40	2410 2415 2420	
	GAG CGT TTC GCG CCC GCG ACG AAC GCC ATC CGT CCC GGG CGG CTG TTC	8129
	Glu Arg Phe Ala Pro Ala Thr Asn Ala Ile Arg Pro Gly Arg Leu Phe	
	2425 2430 2435	
	GAC ACC GTG CCG GAG GCG CGG GAG GCC CTG ACG GCA GCC GGC ACC ACG	8177
45	Asp Thr Val Pro Glu Ala Arg Glu Ala Leu Thr Ala Ala Gly Thr Thr	
	2440 2445 2450	
	TCC GCG ACG CCG GAC GGC GCG CCC GAG CTG GCG CGG CGG TTG TCC ATG	8225
	Ser Ala Thr Pro Asp Gly Ala Pro Glu Leu Ala Arg Arg Leu Ser Met	
	2455 2460 2465 2470	

	CTG AAC GAG ACC GAA CGC CTG CGG AAG CTG GTC GAA CTC GTC CGT ACC	8273
	Leu Asn Glu Thr Glu Arg Leu Arg Lys Leu Val Glu Leu Val Arg Thr	
	2475 2480 2485	
5	GAG GCG GCC TTT GTG CTG CGG CAT CCG AAC ACG GAC GCC ATC GGC GCC	8321
	Glu Ala Ala Phe Val Leu Arg His Pro Asn Thr Asp Ala Ile Gly Ala	
	2490 2495 2500	
10	GAA CGC CCG TTC AAG TCG GCC GGT TTC GAC TCC CTG ACC TCC CTG GAA	8369
	Glu Arg Pro Phe Lys Ser Ala Gly Phe Asp Ser Leu Thr Ser Leu Glu	
	2505 2510 2515	
15	CTC CGC AAC CGC CTC AAT GCC GGC ACA GGC CTG AAG CTA CCC GCC ACC	8417
	Leu Arg Asn Arg Leu Asn Ala Gly Thr Gly Leu Lys Leu Pro Ala Thr	
	2520 2525 2530	
	GTC ATC TTC GAC CAC CCC AGC CCG ACC GCC CTG GCC AGA CTG CTG CTC	8465
	Val Ile Phe Asp His Pro Ser Pro Thr Ala Leu Ala Arg Leu Leu Leu	
	2535 2540 2545 2550	
20	GAC CGG CTG ACC GGC GCC GGA GCC CCC GCG CCC GCC GAT GAG CCG	8513
	Asp Arg Leu Thr Gly Ala Gly Ala Pro Ala Pro Ala Ala Asp Glu Pro	
	2555 2560 2565	
25	CCA CTG CCC GTC GCC GTG GCC GAC GAC GAC CCG GTG GTC ATC GTC GGC	8561
	Pro Leu Pro Val Ala Val Ala Asp Asp Asp Pro Val Val Ile Val Gly	
	2570 2575 2580	
	ATG GCG TGC CGT TTC CCC GGT GGG GCG GCG ACC CCT GAG GCG CTG TGG	8609
	Met Ala Cys Arg Phe Pro Gly Gly Ala Gly Thr Pro Glu Ala Leu Trp	
	2585 2590 2595	
30	AAG CTG GTG ACC GAG GAG CGT GAC GTC ATA GGC GCC GCG CCC ACC GAC	8657
	Lys Leu Val Thr Glu Glu Arg Asp Val Ile Gly Ala Ala Pro Thr Asp	
	2600 2605 2610	
35	CGG GCG TGG GAC CTG GAT TCC GTC TAC GAC CCG GAG CCG GGT GTG GCG	8705
	Arg Gly Trp Asp Leu Asp Ser Val Tyr Asp Pro Glu Pro Gly Val Ala	
	2615 2620 2625 2630	
40	GGG AAG ACA TAT GTG CGG GAG GGG GGT TTT CTC CAC GAC GCG GCG GAG	8753
	Gly Lys Thr Tyr Val Arg Glu Gly Gly Phe Leu His Asp Ala Ala Glu	
	2635 2640 2645	
	TTC GAC GCG GAG TTC TTC GGG ATT TCG CCG CGT GAG GCG GTG GCG ATG	8801
	Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala Val Ala Met	
	2650 2655 2660	
45	GAT CCG CAG CAG CGG CTG TTG CTG GAG ACC TCC TGG GAG GCG ATC GAG	8849
	Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Ile Glu	
	2665 2670 2675	
50	CGG GCG GGT ATC GAC CCG CAC TCG CTG CAC GGC AGC CCG ACC GGG GTA	8897
	Arg Ala Gly Ile Asp Pro His Ser Leu His Gly Ser Arg Thr Gly Val	
	2680 2685 2690	
55	TAC GTC GGG CTG ACC CAT CAG GAG TAC GCC TCC CCG CTG CAC GAG GCC	8945
	Tyr Val Gly Leu Thr His Gln Glu Tyr Ala Ser Arg Leu His Glu Ala	
	2695 2700 2705 2710	

	CCG GAG GAG TAC GAA GGC TAT CTG CTC ACC GGC AAG TCG GCG AGC GTC	8993
	Pro Glu Glu Tyr Glu Gly Tyr Leu Leu Thr Gly Lys Ser Ala Ser Val	
	2715 2720 2725	
5	GTC TCC GGC CGC ATC TCG TAC ACG CTG GGG CTG GAG GGT CCT TCG CTC	9041
	Val Ser Gly Arg Ile Ser Tyr Thr Leu Gly Leu Glu Gly Pro Ser Leu	
	2730 2735 2740	
10	TCC ATC GAC ACC GCG TGT TCG TCG TCG CTG GTC GCC CTG CAC AAC GCG	9089
	Ser Ile Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Asn Ala	
	2745 2750 2755	
	GCG CAG GCG TTG CCG GGT GGC GAG TGT GAC ATG GCG TTG GCC GGT GGT	9137
	Ala Gln Ala Leu Arg Gly Gly Glu Cys Asp Met Ala Leu Ala Gly Gly	
15	2760 2765 2770	
	GTG ACG GTG ATG GCG GCA CCC GGA TTG TTC GTG GAG TTT TCG CCG CAG	9185
	Val Thr Val Met Ala Ala Pro Gly Leu Phe Val Glu Phe Ser Arg Gln	
	2775 2780 2785 2790	
20	CGG GGG TTG GCG GCC GAT GGG CCG TGC AAG GCG TTC GCG GAT GGG GCG	9233
	Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ala Asp Gly Ala	
	2795 2800 2805	
	GAT GGG ACC GCT TGG GCC GAG GGT GCG GGG GTG GTG CTG GTG GAG CCG	9281
	Asp Gly Thr Ala Trp Ala Glu Gly Ala Gly Val Val Leu Val Glu Arg	
25	2810 2815 2820	
	TTG TCG GAT GCC CCG CCG TTG GGG CAT CCG GTG TTG GCG GTG GTG TGT	9329
	Leu Ser Asp Ala Arg Arg Leu Gly His Pro Val Leu Ala Val Val Cys	
30	2825 2830 2835	
	GGG TCG GCG GTG AAT CAG GAC GGT GCG TCG AAT GGT TTG ACG GCG CCG	9377
	Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro	
	2840 2845 2850	
35	AGT GGT CCG TCG CAG GAG CCG GTG ATT CGT CAG CCG TTG GCG AAT CCG	9425
	Ser Gly Pro Ser Gln Glu Arg Val Ile Arg Gln Ala Leu Ala Asn Ala	
	2855 2860 2865 2870	
	CGG TTG ACG GTG GCG GAT GTG GAT GTG GTG GAG GCG CAT GGG ACG GGG	9473
	Arg Leu Thr Val Ala Asp Val Asp Val Val Glu Ala His Gly Thr Gly	
40	2875 2880 2885	
	ACG CCG CTG GGT GAT CCG ATC GAG GCG CAG GCG TTG CTG GGG ACG TAT	9521
	Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Gly Thr Tyr	
45	2890 2895 2900	
	GGG CCG GAT CGT GAT GCT GAG TGT CCG GTG TGG TTG GGG TCG TTG AAG	9569
	Gly Arg Asp Arg Asp Ala Glu Cys Pro Val Trp Leu Gly Ser Leu Lys	
	2905 2910 2915	
50	TCG AAT ATT GGT CAT GCT CAG GCG GCT GCG GGG GTG GCT GGT GTG ATC	9617
	Ser Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Ala Gly Val Ile	
	2920 2925 2930	
	AAG ATG GTG TTG GCG ATG CCG TAT GGG TGG TTG CCG CCG ACG TTG CAT	9665
	Lys Met Val Leu Ala Met Arg Tyr Gly Trp Leu Pro Arg Thr Leu His	
55	2935 2940 2945 2950	

5	GTG GAT GAG CCG AGC CGG CAT GTG GAC TGG TCG GCT GGT GGT GTG CGG Val Asp Glu Pro Ser Arg His Val Asp Trp Ser Ala Gly Gly Val Arg 2955 2960 2965	9713
10	TTG CTG ACC GAG GCG CGG GAG TGG CCG GGG GTG GAC CGG CCG CGT CGG Leu Leu Thr Glu Ala Arg Glu Trp Pro Gly Val Asp Arg Pro Arg Arg 2970 2975 2980	9761
15	GCG GCG GTC TCC GCC TTC GGT GTC AGT GGT ACC AAC GCC CAT CTG ATC Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn Ala His Leu Ile 2985 2990 2995	9809
20	CTC GAA GCC CCC GAA GCC CTC GAA GCC CTC GAA GCC ACC GAC GCC CCC Leu Glu Ala Pro Glu Ala Leu Glu Ala Leu Glu Ala Thr Asp Ala Pro 3000 3005 3010	9857
25	GAA GCC CCC GAA GCC CCC GAA GCC CCC GAC GTC ACC GAC GTC ACC GAA Glu Ala Pro Glu Ala Pro Glu Ala Pro Asp Val Thr Asp Val Thr Glu 3015 3020 3025 3030	9905
30	GCC CTC GAA GCC CCC GAC GCC ACC GAG GCG GAG GGT GCG AAG GCT CCT Ala Leu Glu Ala Pro Asp Ala Thr Glu Ala Glu Gly Ala Lys Ala Pro 3035 3040 3045	9953
35	GGC AGT CCC GAA GAG GCA CAG CCT GCT GTG GGT GTG GTG CCG GTG GTG Gly Ser Pro Glu Glu Ala Gln Pro Ala Val Gly Val Val Pro Val Val 3050 3055 3060	10001
40	GTT TCG GGG CGT TCG CGG GTG GTG GTG CCG GAG GCT GCG GGC CGG TTG Val Ser Gly Arg Ser Arg Val Val Val Arg Glu Ala Ala Gly Arg Leu 3065 3070 3075	10049
45	GCG GAG GTG GTG GAG GCC GGT GGT GTG GGG CTG GCG GAT GTG GCG GTG Ala Glu Val Val Glu Ala Gly Gly Val Gly Leu Ala Asp Val Ala Val 3080 3085 3090	10097
50	ACG ATG GCG GGC CGG TCG CGG TTT GGG TAT CCG GCG GTT GTG CTG GCT Thr Met Ala Gly Arg Ser Arg Phe Gly Tyr Arg Ala Val Val Leu Ala 3095 3100 3105 3110	10145
55	CGG GGT GAG GCT GAG CTT GCC GGG CGT TTG CCG GCG TTG GCG GGG GGT Arg Gly Glu Ala Glu Leu Ala Gly Arg Leu Arg Ala Leu Ala Gly Gly 3115 3120 3125	10193
60	GAT CCG GAC GCG GGT GTG GTC ACC GGT GCG GTG GTG GAC CCG GAG ACG Asp Pro Asp Ala Gly Val Val Thr Gly Ala Val Val Asp Pro Glu Thr 3130 3135 3140	10241
65	GGG TCC GGT GGT GGG GGC GTG GTG TTG GTT TTC CCT GGT CAG GGG ACG Gly Ser Gly Gly Gly Gly Val Val Leu Val Phe Pro Gly Gln Gly Thr 3145 3150 3155	10289
70	CAG TGG GTG GGG ATG GGT GCG GGG CTG CTG GGG TCT TCG GAG GTG TTT Gln Trp Val Gly Met Gly Ala Gly Leu Leu Gly Ser Ser Glu Val Phe 3160 3165 3170	10337
75	GCG GCG TCG ATG CCG GAG TGT GCG CCG GCG CTG AGT GTT CAT GTG GAG Ala Ala Ser Met Arg Glu Cys Ala Arg Ala Leu Ser Val His Val Glu 3175 3180 3185 3190	10385

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	TGG GAT TTG CTG GAG GTG GTG TCG GGC GGG GCC GGG TTG GAG CGG GTG	10433
	Trp Asp Leu Leu Glu Val Val Ser Gly Gly Ala Gly Leu Glu Arg Val	
	3195 3200 3205	
5	GAT GTG GTG CAG CCC GTG ACG TGG GCG GTG ATG GTG TCG CTG GCC CGG	10481
	Asp Val Val Gln Pro Val Thr Trp Ala Val Met Val Ser Leu Ala Arg	
	3210 3215 3220	
10	TAC TGG CAG GCG ATG GGT GTG GAC GTG GCT GCG GTG GTG GGT CAT TCC	10529
	Tyr Trp Gln Ala Met Gly Val Asp Val Ala Ala Val Val Gly His Ser	
	3225 3230 3235	
	CAG GGG GAG ATC GCT GCT GCC ACG GTG GCG GGG GCG TTG TCG CTG GAG	10577
	Gln Gly Glu Ile Ala Ala Ala Thr Val Ala Gly Ala Leu Ser Leu Glu	
15	3240 3245 3250	
	GAT GCG GCG GCT GTG GTC GCT CTG CGG GCG GGG TTG ATT GGC CGG TAT	10625
	Asp Ala Ala Ala Val Val Ala Leu Arg Ala Gly Leu Ile Gly Arg Tyr	
	3255 3260 3265 3270	
20	CTG GCG GGT CGT GGT GCG ATG GCG GCT GTT CCG CTG CCT GCC GGC GAG	10673
	Leu Ala Gly Arg Gly Ala Met Ala Ala Val Pro Leu Pro Ala Gly Glu	
	3275 3280 3285	
25	GTC GAG GCC GGG CTG GCG AAG TGG CCC GGA GTA CAG GTA GCC GCG GTC	10721
	Val Glu Ala Gly Leu Ala Lys Trp Pro Gly Val Gln Val Ala Ala Val	
	3290 3295 3300	
	AAC GGT CCG GCG TCC ACG GTG GTT TCC GGG GAT CCG CCG GCG GTG GCC	10769
	Asn Gly Pro Ala Ser Thr Val Val Ser Gly Asp Arg Arg Ala Val Ala	
30	3305 3310 3315	
	GGT TAT GTG GCC GTC TGT CAG GCG GAG GGT GTG CAG GCT CCG TTG ATA	10817
	Gly Tyr Val Ala Val Cys Gln Ala Glu Gly Val Gln Ala Arg Leu Ile	
	3320 3325 3330	
35	CCG GTG GAC TAC GCC TCT CAC TCC CGC CAT GTG GAG GAC CTG AAG GGC	10865
	Pro Val Asp Tyr Ala Ser His Ser Arg His Val Glu Asp Leu Lys Gly	
	3335 3340 3345 3350	
	GAG TTG GAG CCG GTG CTG TCC GGT ATC CGC CCC CCG AGT CCG CCG GTG	10913
	Glu Leu Glu Arg Val Leu Ser Gly Ile Arg Pro Arg Ser Pro Arg Val	
40	3355 3360 3365	
	CCG GTG TGT TCC ACC GTC GCC GGA GAG CAG CCG GGC GAG CCG GTT TTC	10961
	Pro Val Cys Ser Thr Val Ala Gly Glu Gln Pro Gly Glu Pro Val Phe	
45	3370 3375 3380	
	GAT GCG GGG TAT TGG TTC CGT AAT CTG CCG AAC CCG GTT GAG TTC TCC	11009
	Asp Ala Gly Tyr Trp Phe Arg Asn Leu Arg Asn Arg Val Glu Phe Ser	
	3385 3390 3395	
50	GCG GTG GTC GGT GGT TTG TTG GAG CAG GGC CAC CGT CCG TTC ATC GAG	11057
	Ala Val Val Gly Gly Leu Leu Glu Gln Gly His Arg Arg Phe Ile Glu	
	3400 3405 3410	
55	GTC AGT GCC CAC CCG GTA CTC GTC CAT GCC ATT GAG CAG ACG GCC GAG	11105
	Val Ser Ala His Pro Val Leu Val His Ala Ile Glu Gln Thr Ala Glu	
	3415 3420 3425 3430	

5	GCC GCG GAC CGG AGT GTC CAT GCC ACC GGA ACC CTG CGC CGC CAG GAC Ala Ala Asp Arg Ser Val His Ala Thr Gly Thr Leu Arg Arg Gln Asp 3435 3440 3445	11153
10	GAC AGC CCG CAC CGC CTG CTG ACC TCC ACC GCC GAG GCC TGG GCC CAC Asp Ser Pro His Arg Leu Leu Thr Ser Thr Ala Glu Ala Trp Ala His 3450 3455 3460	11201
15	GGC GCC ACC CTC ACC TGG GAC CCC GCC CTG CCC CCA GGT CAC CTC ACC Gly Ala Thr Leu Thr Trp Asp Pro Ala Leu Pro Pro Gly His Leu Thr 3465 3470 3475	11249
20	ACC CTC CCC ACC TAC CCC TTC AAC CAC CAC CAC TAC TGG GCC GTG ACA Thr Leu Pro Thr Tyr Pro Phe Asn His His His Tyr Trp Ala Val Thr 3480 3485 3490	11297
25	TCC CCC GCC GGA GTC GGC GAC GCG GCT GCG GGC CGG TTC GGT ATG ACC Ser Pro Ala Gly Val Gly Asp Ala Ala Ala Gly Arg Phe Gly Met Thr 3495 3500 3505 3510	11345
30	TGG GAG GAC CAC CCC TTC CTC CGT GGC GGG TTA CCC CTG GCC GAC TCC Trp Glu Asp His Pro Phe Leu Arg Gly Gly Leu Pro Leu Ala Asp Ser 3515 3520 3525	11393
35	GGT GAG CGG GTG TTC GCC GGG CGG CTG GCG GGC TCC GAG CAC GAC TGG Gly Glu Arg Val Phe Ala Gly Arg Leu Ala Gly Ser Glu His Asp Trp 3530 3535 3540	11441
40	CTG ACG GAC CAT GCC GTG TCC GGG GTG ACG TTG CTG CCG GGT ACG GCC Leu Thr Asp His Ala Val Ser Gly Val Thr Leu Leu Pro Gly Thr Ala 3545 3550 3555	11489
45	TTC GTG GAG TTC GCG CTG CAC GCG GGA GCC GCC ACC GGC TGC GGC CGG Phe Val Glu Phe Ala Leu His Ala Gly Ala Ala Thr Gly Cys Gly Arg 3560 3565 3570	11537
50	CTG GAA GAG CTG AGC GTT GAG GCG CCG TTG GTC TTG CCC GCC GCC GGT Leu Glu Glu Leu Ser Val Glu Ala Pro Leu Val Leu Pro Ala Ala Gly 3575 3580 3585 3590	11585
55	GGT GTG CGG GTG CAG ATG AGG GTG TCG GCC GCC GAC GAG TCG GGA CGG Gly Val Arg Val Gln Met Arg Val Ser Ala Ala Asp Glu Ser Gly Arg 3595 3600 3605	11633
60	CGG AGG GTC GCC ATC CAC TCG GCC CCG GAA GCC GCC GTC CAC TCG GCC Arg Arg Val Ala Ile His Ser Ala Pro Glu Ala Ala Val His Ser Ala 3610 3615 3620	11681
65	GCA GAA GGC GGC GAC TCG GCC GGT GTC TGG ACG CGG CAC GGC GAG GGC Ala Glu Gly Gly Asp Ser Ala Gly Val Trp Thr Arg His Gly Glu Gly 3625 3630 3635	11729
70	ACG CTC GTG CCG GAC CCG GAG CCC ACG CCT CCG GAC GCC GAC TGG GCG Thr Leu Val Pro Asp Pro Glu Pro Thr Pro Pro Asp Ala Asp Trp Ala 3640 3645 3650	11777
75	CGG GCC TGG CCG CCC GCC GGG GAA CGC GTC GAA CCG GCC GAG CTC TAC Arg Ala Trp Pro Pro Ala Gly Glu Arg Val Glu Pro Ala Glu Leu Tyr 3655 3660 3665 3670	11825

	GAA CGG TTC GGG GCC CTG GGC TAC GAG TAC GGT GAG GCG TTC GCG GGC	11873
	Glu Arg Phe Gly Ala Leu Gly Tyr Glu Tyr Gly Glu Ala Phe Ala Gly	
	3675 3680 3685	
5	GTG CGC GCC GTA TGG CGG CAG CCG GAC GCG CTG CTC GCC GAG GTG CTC	11921
	Val Arg Ala Val Trp Arg Gln Pro Asp Ala Leu Leu Ala Glu Val Leu	
	3690 3695 3700	
10	CTG CCC GAC CGG GCC TCG ACC GGT GCC GGC CGG TTC GGT GTG CAC CCC	11969
	Leu Pro Asp Arg Ala Ser Thr Gly Ala Gly Arg Phe Gly Val His Pro	
	3705 3710 3715	
	GCG CTG CTG GAC GCG GCG CTG CAG CCG TGG ATC GCC GGT GGT CTC CTC	12017
	Ala Leu Leu Asp Ala Ala Leu Gln Pro Trp Ile Ala Gly Gly Leu Leu	
15	3720 3725 3730	
	GAA GTG CCG GAG GAC GCA GTG CTG CTG CCC TTC GCC TGG CAG GGA GTG	12065
	Glu Val Pro Glu Asp Ala Val Leu Leu Pro Phe Ala Trp Gln Gly Val	
	3735 3740 3745 3750	
20	TCG CTC TAC GCG ACG GGT GCC GGT GCT CTG CGG GTG CGG CTG ACG AAG	12113
	Ser Leu Tyr Ala Thr Gly Ala Gly Ala Leu Arg Val Arg Leu Thr Lys	
	3755 3760 3765	
25	GCG GGT GAC GGG GCG GTC TCG CTC CAG GCC GCA GAC ACG TCC GGC GCG	12161
	Ala Gly Asp Gly Ala Val Ser Leu Gln Ala Ala Asp Thr Ser Gly Ala	
	3770 3775 3780	
	GCC GTG CTC TCC TTG GGG GCC CTG GTG ATG CGT CCG CTG GCG CGC CGG	12209
	Ala Val Leu Ser Leu Gly Ala Leu Val Met Arg Pro Leu Ala Arg Arg	
30	3785 3790 3795	
	AAG CTG GAC GTG CTG CTC GGC ACG GAC GCC GGC GAA CGG TCG CTG TAC	12257
	Lys Leu Asp Val Leu Leu Gly Thr Asp Ala Gly Glu Arg Ser Leu Tyr	
	3800 3805 3810	
35	CGC GTC GAG TGG CAG CCG CGG CTC CTG CCC GCC GGC CCG CCG CGC TCC	12305
	Arg Val Glu Trp Gln Pro Arg Leu Leu Pro Ala Gly Pro Pro Arg Ser	
	3815 3820 3825 3830	
40	TGG GCG GTG CTC GGC CCC GAC GCG GAC CGG CTC GCC GGG ACG CCG GGC	12353
	Trp Ala Val Leu Gly Pro Asp Ala Asp Arg Leu Ala Gly Thr Pro Gly	
	3835 3840 3845	
	CTG GGG GAT CAG CCG GAC GGT GGG CCC ACC GCG CTG TAC CCG GAG GTG	12401
	Leu Gly Asp Gln Pro Asp Gly Gly Pro Thr Ala Leu Tyr Pro Glu Val	
45	3850 3855 3860	
	CGG GCG CTG CGG AAG GCG CTG GCG GCG GGC GCG CCG CGG CCG GAA GCG	12449
	Arg Ala Leu Arg Lys Ala Leu Ala Ala Gly Ala Pro Arg Pro Glu Ala	
	3865 3870 3875	
50	GTC GTA CTG CCG GTG CTC TCC GGG GCC GGG GCC ACT CCG GAG TCG GTG	12497
	Val Val Leu Pro Val Leu Ser Gly Ala Gly Ala Thr Pro Glu Ser Val	
	3880 3885 3890	
55	CGG CAG ACA ACG GAG CGC TGT CTG ACC GCG CTC CAG GAC TGG CTG GAC	12545
	Arg Gln Thr Thr Glu Arg Cys Leu Thr Ala Leu Gln Asp Trp Leu Asp	
	3895 3900 3905 3910	

	GCC GAG GAG TTG GTG GAC ACA CCG CTC ATA GTG CTC ACC AGG GGA GCC	12593
	Ala Glu Glu Leu Val Asp Thr Pro Leu Ile Val Leu Thr Arg Gly Ala	
	3915 3920 3925	
5	GTC GCC GCC GTA CCG GGG GAG GAG ATC GGG GAC CTG GCG TGT GCG GGG	12641
	Val Ala Ala Val Pro Gly Glu Glu Ile Gly Asp Leu Ala Cys Ala Gly	
	3930 3935 3940	
10	GTG TGG GGC CTG GTG AGG TCC GCG CCG TCC GAG CAC CCG GGC CGC TTC	12689
	Val Trp Gly Leu Val Arg Ser Ala Arg Ser Glu His Pro Gly Arg Phe	
	3945 3950 3955	
15	GCC CTC GTC GAC ACC GAC GGG CAT CCG GAC GAC CGC ACC GCG CTG CCC	12737
	Ala Leu Val Asp Thr Asp Gly His Pro Asp Asp Arg Thr Ala Leu Pro	
	3960 3965 3970	
	CTC GCG CTG CGC GCG GTC CTC GAC GGC GCC GGC CAG CTC TCC CTG CCG	12785
	Leu Ala Leu Arg Ala Val Leu Asp Gly Ala Gly Gln Leu Ser Leu Arg	
	3975 3980 3985 3990	
20	GCC GGC ACC GCC CCG ACC CCG GTC CTC CTC CCG GCC GGG ACC CCG GAG	12833
	Ala Gly Thr Ala Arg Thr Pro Val Leu Leu Arg Ala Gly Thr Pro Glu	
	3995 4000 4005	
25	GAG CAG CCG GGT CCG GCA TTC GAC CCG GCG GGC ACG GTC CTG GTG ACG	12881
	Glu Gln Arg Gly Pro Ala Phe Asp Pro Ala Gly Thr Val Leu Val Thr	
	4010 4015 4020	
	GGC GCG ACC GGC ACG CTC GGG CCG CTG CTG GCC CCG CAT CTG GCC GCC	12929
	Gly Ala Thr Gly Thr Leu Gly Arg Leu Leu Ala Arg His Leu Ala Ala	
	4025 4030 4035	
30	GAG CAC GGT GTG CCG CAT CTG CTG CTG CTG AGC CCG GGC GGC CCG GCT	12977
	Glu His Gly Val Arg His Leu Leu Leu Ser Arg Gly Gly Arg Ala	
	4040 4045 4050	
35	GCC GAA GGC GCG GAC GAA CTC GCC GCG GAA CTG GCC GGG TTG GAA GCC	13025
	Ala Glu Gly Ala Asp Glu Leu Ala Ala Glu Leu Ala Gly Leu Glu Ala	
	4055 4060 4065 4070	
40	GAG CCG TGC TTC GCG GCC TGT GAC GCG GCG GAC CCG GAG GCC CTG GCA	13073
	Glu Pro Cys Phe Ala Ala Cys Asp Ala Ala Asp Arg Glu Ala Leu Ala	
	4075 4080 4085	
	CGG GTG CTG GCG GAG GTG CCG GCC GAC CCG CCG CTG ACC GGA GTG ATC	13121
	Arg Val Leu Ala Glu Val Pro Ala Asp Arg Pro Leu Thr Gly Val Ile	
	4090 4095 4100	
45	CAC GCG GCC GGG GTG CTC GAC GAC GGC ACA CTC GAC GCG CTG ACC CCG	13169
	His Ala Ala Gly Val Leu Asp Asp Gly Thr Leu Asp Ala Leu Thr Pro	
	4105 4110 4115	
50	GAA CCG ATC GGT ACC GTC ATG CCG CCG AAG GCG GAC GCG GCG CTG AAC	13217
	Glu Arg Ile Gly Thr Val Met Arg Pro Lys Ala Asp Ala Ala Leu Asn	
	4120 4125 4130	
55	CTG CAC GAA CTG ACC CCG ACC AGC CCG CTG TCG GTG TTC GCG GTC TTC	13265
	Leu His Glu Leu Thr Arg Thr Ser Pro Leu Ser Val Phe Ala Val Phe	
	4135 4140 4145 4150	

5	TCG GGC GCT GCC GGC ATC CTG GGC CGC CCC GGA CAG GCC AAC TAC GCC Ser Gly Ala Ala Gly Ile Leu Gly Arg Pro Gly Gln Ala Asn Tyr Ala 4155 4160 4165	13313
10	GCC GCC AAC ACC TTC CTC GAC GCG CTC GCG CAG CAC CGC CGC GCC CAC Ala Ala Asn Thr Phe Leu Asp Ala Leu Ala Gln His Arg Arg Ala His 4170 4175 4180	13361
15	GGC CTC CCC GCC GTG TCG CTG GCC TGG GGG CTG TGG GGC GGG GCG ACC Gly Leu Pro Ala Val Ser Leu Ala Trp Gly Leu Trp Gly Gly Ala Thr 4185 4190 4195	13409
20	GGC ATG ACC GGC CAT CTG TCC GGC ACC GAT CTG CGC CGG ATG CGC AGG Gly Met Thr Gly His Leu Ser Gly Thr Asp Leu Arg Arg Met Arg Arg 4200 4205 4210	13457
25	TCC GGT ATC GCG CCG ATG ACC CAC GAC CAG GGG CTC GCC CTG TTC GAC Ser Gly Ile Ala Pro Met Thr His Asp Gln Gly Leu Ala Leu Phe Asp 4215 4220 4225 4230	13505
30	CGA GCG CTC GCC GCC TCG GCC GAG GAC CCG CTG CTC GTA CCG ATG CGG Arg Ala Leu Ala Ala Ser Ala Glu Asp Pro Leu Leu Val Pro Met Arg 4235 4240 4245	13553
35	CTG GAC CTG GCC GCC CTC GTC CCG GAG CCG GCC GAG CAC GGG CCG GAC Leu Asp Leu Ala Ala Leu Val Arg Glu Arg Ala Glu His Gly Pro Asp 4250 4255 4260	13601
40	GCG GTG CCC GGA CCG CTG CTC GGG CTG CTG CCC GCC CGG GCC GCG GTG Ala Val Pro Gly Pro Leu Leu Gly Leu Leu Pro Ala Arg Ala Ala Val 4265 4270 4275	13649
45	CGG CAG GCG GCG GCA CCG GTA CGC GGC GGA GCC CCC GCC CCC GCC GGC Arg Gln Ala Ala Ala Pro Val Arg Gly Gly Ala Pro Ala Pro Ala Gly 4280 4285 4290	13697
50	GGC GAG GGG ACG GCC GAG CCG CTG GCC GGG CTC GGG GAG GAG GCC AGG Gly Glu Gly Thr Ala Glu Arg Leu Ala Gly Leu Gly Glu Glu Ala Arg 4295 4300 4305 4310	13745
55	CTG CGC GAG CTG GTG AGG CTG GTC CGC GCC GAG GTG TCG GGC GTG CTG Leu Arg Glu Leu Val Arg Leu Val Arg Ala Glu Val Ser Gly Val Leu 4315 4320 4325	13793
60	GGC TAC TCG GGC CCG GAC GCG GTG GAG CCC GGG CGC CCG TTC AAG GAT Gly Tyr Ser Gly Pro Asp Ala Val Glu Pro Gly Arg Pro Phe Lys Asp 4330 4335 4340	13841
65	CTC GGC TTC GAC TCG CTG ACC GCC GTG GAG CTG CGC AAC CGC CTC GGC Leu Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg Asn Arg Leu Gly 4345 4350 4355	13889
70	GCC GCC ACC GGG CTG CCG CTG CCG ACC GCG CTG GTC TTC GAC CGC CCG Ala Ala Thr Gly Leu Arg Leu Pro Thr Ala Leu Val Phe Asp Arg Pro 4360 4365 4370	13937
75	ACG TCC CAG GCA GTG GCC GAG TAC CTC GCT GCC GAA CTG GCC GGA CCG Thr Ser Gln Ala Val Ala Glu Tyr Leu Ala Ala Glu Leu Ala Gly Pro 4375 4380 4385 4390	13985

	CGG GAC GGC GGC GAC ACC GCG GCC GCC GCG TTC GAG GGC CTG GAG GCG Arg Asp Gly Gly Asp Thr Ala Ala Ala Phe Glu Gly Leu Glu Ala 4395 4400 4405	14033
5	CTG GCC GCG GCG GTG GGC GCG CTG GCC GAG GAC GAT CTG CGG CGC GAC Leu Ala Ala Ala Val Gly Ala Leu Ala Glu Asp Asp Leu Arg Arg Asp 4410 4415 4420	14081
10	GTG CTC CGG CGG CGA CTG ACC GAA CTG GCC GCC GCG CTC ACC CCG CAG Val Leu Arg Arg Arg Leu Thr Glu Leu Ala Ala Ala Leu Thr Pro Gln 4425 4430 4435	14129
15	GGC CGG AAC CCC TCC GCG CCC GCA CCC GCC CCG TCC GAT CTG GAC GAG Gly Arg Asn Pro Ser Ala Pro Ala Pro Ala Pro Ser Asp Leu Asp Glu 4440 4445 4450	14177
	CGG CTG GAC TCC GCG AAC GAC GAC GAC CTC TTC GCC TTC ATC GAG GAG Arg Leu Asp Ser Ala Asn Asp Asp Asp Leu Phe Ala Phe Ile Glu Glu 4455 4460 4465 4470	14225
20	CAG CTT TGA GCAGCGAGAA CGACAGCAGC GAGAACGACG GCGACGACAC Gln Leu *	14274
	GGCCGGGGCA GCTCCGGGGA CGGCTCCGGG GGCCTCCCC CGGCAGGACG ACCGGGTCAG	14334
25	GGAGTATCTG AAGCGG GTG ACC GCC GAA CTG GTC GCC ACC CGC AAG CGG Met Thr Ala Glu Leu Val Ala Thr Arg Lys Arg 1 5 10	14383
30	CTC GGC GCG CTG GAG GAG CGG GCC CGC GAA CCG ATC GCC GTC GTC GCG Leu Gly Ala Leu Glu Glu Arg Ala Arg Glu Pro Ile Ala Val Val Ala 15 20 25	14431
35	ATG AGC TGC CGC TAC CCG GGC GGG GTG ACG ACC CCC GAG GAC CTG TGG Met Ser Cys Arg Tyr Pro Gly Gly Val Thr Thr Pro Glu Asp Leu Trp 30 35 40	14479
	CGG CTT CTC GCG GAC GAA CGC GAC GCC GTA TCC GGA CTT CCC CGG GAC Arg Leu Leu Ala Asp Glu Arg Asp Ala Val Ser Gly Leu Pro Arg Asp 45 50 55	14527
40	CGC GGC TGG GAC CTG GAC GCC CTC TAC GAC CCC GAC GGC GGC CCC GGC Arg Gly Trp Asp Leu Asp Ala Leu Tyr Asp Pro Asp Gly Gly Pro Gly 60 65 70 75	14575
45	ACC AGC TAC GCC CGC GAA GGC GGC TTC CTG AGC CAC TGC GCC GGA TTC Thr Ser Tyr Ala Arg Glu Gly Gly Phe Leu Ser His Cys Ala Gly Phe 80 85 90	14623
	GAC GCG GAG TTC TTC GGC ATC TCC CCG CGC GAG GCG CTG GCG ATG GAC Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp 95 100 105	14671
50	CCG CAG CAG CGG CTG CTG CTG GAG ACC TCC TGG GAG GCC CTG GAA CGC Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Leu Glu Arg 110 115 120	14719
55	GCC GGA GTC ACC GCC GAC CGC GCC CGG GGC AGC CGG ACG GGC GTG TAC Ala Gly Val Thr Ala Asp Arg Ala Arg Gly Ser Arg Thr Gly Val Tyr	14767

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	125	130	135	
5	GCG GGC GTC ATG TAC GAC GAC TAC GGC GCC CGG GTG CTG TAC GGC GCC Ala Gly Val Met Tyr Asp Asp Tyr Gly Ala Arg Val Leu Tyr Gly Ala 140 145 150 155	14815		
	GGC GCC GGC CCG CCC GAG GAC CTG GAG GGT TAT CTC GTC AAC GGC AGC Gly Ala Gly Pro Pro Glu Asp Leu Glu Gly Tyr Leu Val Asn Gly Ser 160 165 170	14863		
10	GCG GGC AGC ATC GCC TCC GGC CGT GTC TCC TAC ACG TTC GGG CTG CGC Ala Gly Ser Ile Ala Ser Gly Arg Val Ser Tyr Thr Phe Gly Leu Arg 175 180 185	14911		
15	GGC CCC GCG GTC ACC GTC AAT ACG GCC TGT TCG TCG TCA CTG GTG TCG Gly Pro Ala Val Thr Val Asn Thr Ala Cys Ser Ser Ser Leu Val Ser 190 195 200	14959		
20	CTC CAT CTG GCG GTG CGT GCC CTG CGG AAC GGC GAG TGC GAC ATG GCA Leu His Leu Ala Val Arg Ala Leu Arg Asn Gly Glu Cys Asp Met Ala 205 210 215	15007		
	CTG GCC GGC GGG GCG ACG GTG CTG TCC ACC CCC ACC GTG CTC GTG GAC Leu Ala Gly Gly Ala Thr Val Leu Ser Thr Pro Thr Val Leu Val Asp 220 225 230 235	15055		
25	TTC TCC CGC CAG CGC GGT CTG GCC CCC GAC GGC CGC TGC AAG GCG TTC Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys Ala Phe 240 245 250	15103		
30	GCC GAC TCC GCC GAC GGC ACC TCC TGG GCC GAG GGC GCC GGA ATG CTG Ala Asp Ser Ala Asp Gly Thr Ser Trp Ala Glu Gly Ala Gly Met Leu 255 260 265	15151		
35	CTG CTC CAG CGG CTG TCC GAC GCC CGC CGC GAG GGG CGC CCC GTG CTG Leu Leu Gln Arg Leu Ser Asp Ala Arg Arg Glu Gly Arg Pro Val Leu 270 275 280	15199		
	GCC GTC ATT CGC GGC TCG GCC GTC AAC CAG GAC GGC GCC AGC AAC GGA Ala Val Ile Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly 285 290 295	15247		
40	CTG ACC GCC CCC AAC GGG CGG GCG CAG CGG CAG GTC ATC GAG GAC GCG Leu Thr Ala Pro Asn Gly Arg Ala Gln Arg Gln Val Ile Glu Asp Ala 300 305 310 315	15295		
45	CTG CGC GAC GCC GGG GTC GGC CCC GAC CAG GTG GAC GCG GTC GAG GCG Leu Arg Asp Ala Gly Val Gly Pro Asp Gln Val Asp Ala Val Glu Ala 320 325 330	15343		
	CAT GGC ACC GGT ACC GAG CTG GGC GAC CCC ATC GAG GCC GGG GCG CTG His Gly Thr Gly Thr Glu Leu Gly Asp Pro Ile Glu Ala Gly Ala Leu 335 340 345	15391		
50	CTC GCC ACC TAT GGA ACG GCC CGT ACG GCG GAG CGC CCG CTG TGG CTC Leu Ala Thr Tyr Gly Thr Ala Arg Thr Ala Glu Arg Pro Leu Trp Leu 350 355 360	15439		
55	GGC TCC CTG AAG TCC AAC ATC GGG CAC ACC CAG GCC GCC GCC GGT GTT Gly Ser Leu Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val	15487		

	365	370	375	
5	GCG GGC GTC ATC AAG ATG GTG CTG GCG ATG CCG CAC GGC CGG CTG CCC Ala Gly Val Ile Lys Met Val Leu Ala Met Arg His Gly Arg Leu Pro 380 385 390 395			15535
	CGC ACC CTG CAC GTG GAC CGG CCC ACC ACC CGG GTG GAC TGG GAG AAG Arg Thr Leu His Val Asp Arg Pro Thr Thr Arg Val Asp Trp Glu Lys 400 405 410			15583
10	GGC GGG GTG CGG CTC CTC ACG GAG CCG GTG CCA TGG CCG GGG GAA GCG Gly Gly Val Arg Leu Leu Thr Glu Pro Val Pro Trp Pro Gly Glu Ala 415 420 425			15631
15	GGG GAG CCG CGT CGC GCG GGC GTG TCC TCC TTC GGC GCG AGC GGC ACG Gly Glu Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Ala Ser Gly Thr 430 435 440			15679
20	AAC GCG CAT GTG GTG CTG GAG AGC GTC CCG GCC GGT GAA CCG CCC GCC Asn Ala His Val Val Leu Glu Ser Val Pro Ala Gly Glu Pro Pro Ala 445 450 455			15727
	GCC GGG CGG CCG GAG GAC ACA GGC GGC GCC TGG ACG GTC AGC GGC CGC Ala Gly Arg Pro Glu Asp Thr Gly Gly Ala Trp Thr Val Ser Gly Arg 460 465 470 475			15775
25	GGC CCG GCG GCC CTG CGC GCC CAG GCC GCC CGG CTG TAC GAC GCG CTC Gly Pro Ala Ala Leu Arg Ala Gln Ala Ala Arg Leu Tyr Asp Ala Leu 480 485 490			15823
30	ACC GGC ACC GGC ACC GGC ACC GGA CAG GGC GCC GGA CAG GGC GCC GGA Thr Gly Thr Gly Thr Gly Thr Gly Gln Gly Ala Gly Gln Gly Ala Gly 495 500 505			15871
35	CCC GGC ACC GCC GAG GTG GCC GGC GCG CTG GCC CAC GCC CGT ACC GCG Pro Gly Thr Ala Glu Val Ala Gly Ala Leu Ala His Ala Arg Thr Ala 510 515 520			15919
	TTC CGG CAC CGG GCC GTC GTG CTC GGC GGA AAC CGC GCC GAA CTG CTC Phe Arg His Arg Ala Val Leu Gly Gly Asn Arg Ala Glu Leu Leu 525 530 535			15967
40	GCG GGG CTG CGC GAG CTG GCG GAG GAG GAG CAT CCC GGA CCC CGC GTG Ala Gly Leu Arg Glu Leu Ala Glu Glu Glu His Pro Gly Pro Arg Val 540 545 550 555			16015
45	GTC ACA GGG ACC GCC CCG GCC ACC GAG CGG CGG ACG GCC TTC CTC TTC Val Thr Gly Thr Ala Pro Ala Thr Glu Arg Arg Thr Ala Phe Leu Phe 560 565 570			16063
50	TCC GGG CAG GGC AGC CAG CGG GCC GGC TCC GGC CGG GGC CTG TAC CGC Ser Gly Gln Gly Ser Gln Arg Ala Gly Ser Gly Arg Gly Leu Tyr Arg 575 580 585			16111
	CGC CAC CCG GTC TTC GCC CGC GCC CTC GAC GAG GTG TGC GCC GCG CTC Arg His Pro Val Phe Ala Arg Ala Leu Asp Glu Val Cys Ala Ala Leu 590 595 600			16159
55	GAA CCG CAT CTT CAC CGC CCC CTG CGT GAC CTG ATG TTC GCC GAG CCC Glu Pro His Leu His Arg Pro Leu Arg Asp Leu Met Phe Ala Glu Pro			16207

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	605	610	615	
5	GGC AGC CCG GAA GCG GAG CCG CTC GAC CGC ACC GAG TTC ACC CAG CCC Gly Ser Pro Glu Ala Glu Pro Leu Asp Arg Thr Glu Phe Thr Gln Pro 620 625 630 635			16255
	GCG CTG TTC GCG CTC CAG ACC GCC CTG TTC CCG CTG GCC GAG CAC CAC Ala Leu Phe Ala Leu Gln Thr Ala Leu Phe Arg Leu Ala Glu His His 640 645 650			16303
10	GGG CTG CGC GCC GAG GCG CTG TGC GGG CAC AGC GTC GGC GAG ATC GCG Gly Leu Arg Glu Ala Leu Cys Gly His Ser Val Gly Glu Ile Ala 655 660 665			16351
15	GCC GCC CAT GCC GCC GGT GTG CTG ACC CTG CCC GAC GCG GCC CGT CTG Ala Ala His Ala Ala Gly Val Leu Thr Leu Pro Asp Ala Ala Arg Leu 670 675 680			16399
20	GTG GCC GCC CGG GGA CCG CTG ATG CAG GCC CTG CCG GCC GGC GGT GCC Val Ala Ala Arg Gly Arg Leu Met Gln Ala Leu Pro Ala Gly Gly Ala 685 690 695			16447
	ATG GCC GCG CTG CGC GCC ACC GCC GAG GAG ATC GCA CCA CTG CTG GAG Met Ala Ala Leu Arg Ala Thr Ala Glu Glu Ile Ala Pro Leu Leu Glu 700 705 710 715			16495
25	CGC CGC GCG GGC GAA CTG GCG CTC GCC GCC GTC AAC GGC CCC TCC TCG Arg Arg Ala Gly Glu Leu Ala Leu Ala Ala Val Asn Gly Pro Ser Ser 720 725 730			16543
30	GTG GTG GTG TCG GGC GAC GAG GCC GCC GTC CTG GAG CTA CTG GAG CAG Val Val Val Ser Gly Asp Glu Ala Ala Val Leu Glu Leu Leu Glu Gln 735 740 745			16591
35	TGG CCG GCC GAG GGC CGC GAG GCC AGG CGG CTC GCC GTC AGC CAT GCC Trp Arg Ala Glu Gly Arg Glu Ala Arg Arg Leu Ala Val Ser His Ala 750 755 760			16639
	TTC CAT TCA CCG CGG ATG GAC GGA ATG TTG ACA CAG TTC GAC CGG GTC Phe His Ser Pro Arg Met Asp Gly Met Leu Thr Gln Phe Asp Arg Val 765 770 775			16687
40	GCT CGC ACC CTG ACG TTC GCT CCG CCG ACC ATT CCC CTC GTG TCC ACC Ala Arg Thr Leu Thr Phe Ala Pro Pro Thr Ile Pro Leu Val Ser Thr 780 785 790 795			16735
45	CTC ACC GGT ACG CCC GTC ACC GAG GAA ACC CTG TGC ACC GCG GAC CAC Leu Thr Gly Thr Pro Val Thr Glu Glu Thr Leu Cys Thr Ala Asp His 800 805 810			16783
50	TGG GTC CGC CAG GCG CGC GAG CCG GTG CGC TTC CTG GAC GCC ATG CCG Trp Val Arg Gln Ala Arg Glu Pro Val Arg Phe Leu Asp Ala Met Arg 815 820 825			16831
	ACC CTG CGC GCC GAC GGG ATC GAC ACC TTC GTG GAA CTC GGC CCC GAC Thr Leu Arg Ala Asp Gly Ile Asp Thr Phe Val Glu Leu Gly Pro Asp 830 835 840			16879
55	GGC GTG CTG TCC GCC ATG GCC CGC GAC TGC GCG GAC GAC CCG CCC GAT Gly Val Leu Ser Ala Met Ala Arg Asp Cys Ala Asp Asp Arg Pro Asp			16927

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	845	850	855	
5	GGC GAC ACA ACC GGG GCC GGG GAC GGG GAG ACC CCC GAT CCG CTG CTC Gly Asp Thr Thr Gly Ala Gly Asp Gly Glu Thr Pro Asp Pro Leu Leu 860 865 870 875			16975
	ACC CTC CCG CTG CTG CGC CGC TCC GTG CCC GAG ACC GGC GAC GCC GAA Thr Leu Pro Leu Leu Arg Arg Ser Val Pro Glu Thr Gly Asp Ala Glu 880 885 890			17023
10	CAC CCC GGC GGC TTC GAA CGG GCC CTG GCC ACC GCC TAC GCA CAC GGC His Pro Gly Gly Phe Glu Arg Ala Leu Ala Thr Ala Tyr Ala His Gly 895 900 905			17071
15	GTC CCC CTG CGG CTC GCG CCC GCC CCC GAC GCC GCG TCC CTC GCC GTG Val Pro Leu Arg Leu Ala Pro Ala Pro Asp Ala Ala Ser Leu Ala Val 910 915 920			17119
20	GCC GCC GAA CTG CCC ACC TAC GCC TTC CAG CGC ACC CAC TAC TGG CTC Ala Ala Glu Leu Pro Thr Tyr Ala Phe Gln Arg Thr His Tyr Trp Leu 925 930 935			17167
	GAC GCG CCC GCC GCC CCC GCC GCC CTC CCC GCC GGG CTC GAC GAC GCC Asp Ala Pro Ala Ala Pro Ala Ala Leu Pro Ala Gly Leu Asp Asp Ala 940 945 950 955			17215
25	GGT CAC CCG CTG CTC TCC GCG GCC CTC GAC CTG CCC GGC GGA CGC GGA Gly His Pro Leu Leu Ser Ala Ala Leu Asp Leu Pro Gly Gly Arg Gly 960 965 970			17263
30	ACG GTG TGG ACC GGA GCG CTC TCC GCG GCC ACC CTG CCC TGG GCC GCG Thr Val Trp Thr Gly Ala Leu Ser Ala Ala Thr Leu Pro Trp Ala Ala 975 980 985			17311
	GAC CAC AGC GTG CAC GGC CGC ACC GTC CTG CCG GGC ACC GCC CTG CTC Asp His Ser Val His Gly Arg Thr Val Leu Pro Gly Thr Ala Leu Leu 990 995 1000			17359
35	GAC CTG GCG CTC CAC GCC GCC CCG CGC GTC GGC GAG TTG ACC TTC GAG Asp Leu Ala Leu His Ala Pro Arg Val Gly Glu Leu Thr Phe Glu 1005 1010 1015			17407
40	GCG CCG CTG GTG CTG CCG GAG GAC GGA GAG GTC CCG CTG CGC GTC GTA Ala Pro Leu Val Leu Pro Glu Asp Gly Glu Val Arg Leu Arg Val Val 1020 1025 1030 1035			17455
45	CTC GCT GAA CCG GAC GCG AGC GGA GTA CGC GAA CTG TCT GTC CAC TCC Leu Ala Glu Pro Asp Ala Ser Gly Val Arg Glu Leu Ser Val His Ser 1040 1045 1050			17503
	GCC GGC GAG GAC GGC GGC TGG ACC CCG CAC GCG ACA CCG GTC CTG GAC Ala Gly Glu Asp Gly Gly Trp Thr Arg His Ala Thr Ala Val Leu Asp 1055 1060 1065			17551
50	ACC GGC ACC ACC ACC GCC GGG GAG CCC GCC GGC GCA CCG CCC GCC GCA Thr Gly Thr Thr Thr Ala Gly Glu Pro Ala Gly Ala Pro Pro Ala Ala 1070 1075 1080			17599
55	TGG CCG CCC GGG GAC GCC GAA CCC CTC GAC CTT GCC GCC GAG TAC GAG Trp Pro Pro Gly Asp Ala Glu Pro Leu Asp Leu Ala Ala Glu Tyr Glu			17647

	1085	1090	1095	
5	CGC TTC GCC GAC GCC GGC ATC GGA TAC GGC CCC GCC TTC CGC GGA CTG Arg Phe Ala Asp Ala Gly Ile Gly Tyr Gly Pro Ala Phe Arg Gly Leu 1100 1105 1110 1115			17695
	CGC TCC GCC TGG CGC GAC GGC GAC GCG ATA CTG GCC GAC GTA CGG CTG Arg Ser Ala Trp Arg Asp Gly Asp Ala Ile Leu Ala Asp Val Arg Leu 1120 1125 1130			17743
10	CCC GGC GAA CTG GCC GGC GAA GCC GAC CGG TAC GGC ATC CAC CCG GCC Pro Gly Glu Leu Ala Gly Glu Ala Asp Arg Tyr Gly Ile His Pro Ala 1135 1140 1145			17791
15	CTG CTC GAC GCC GCC CTG CAC ACC GCG GCC GCC GCC CTG GGA GGG GCG Leu Leu Asp Ala Ala Leu His Thr Ala Ala Ala Ala Leu Gly Gly Ala 1150 1155 1160			17839
20	CAC GGG ATG CTG CCG TTC ACG TGG AAC GGC GTC ACC CTC CAC GCC CGC His Gly Met Leu Pro Phe Thr Trp Asn Gly Val Thr Leu His Ala Arg 1165 1170 1175			17887
	GGA GCG CAC GCC ATC CGG GTG CGG CTG ACC CCG GCC GGC CCC GAC GCG Gly Ala His Ala Ile Arg Val Arg Leu Thr Pro Ala Gly Pro Asp Ala 1180 1185 1190 1195			17935
25	GTC GCG GTC ACC GCC GTG GAC CCG GCG GGG CGC CCC GTG TTC ACG GCC Val Ala Val Thr Ala Val Asp Pro Ala Gly Arg Pro Val Phe Thr Ala 1200 1205 1210			17983
30	GCC TCG CTC ACC CTG CGA CCG GTC ACG ACC GGG CAG CTG ACC GCG GCC Ala Ser Leu Thr Leu Arg Pro Val Thr Thr Gly Gln Leu Thr Ala Ala 1215 1220 1225			18031
35	GAG GCC GCG CGG GCC CCG CTG TAC CGG GTG CGC TGG ACC GGC CTC CCG Glu Ala Ala Arg Ala Pro Leu Tyr Arg Val Arg Trp Thr Gly Leu Pro 1230 1235 1240			18079
	GAC ACC GGA ACC GCC CGG GAC CAC ACC TGG GCG GTG GCC GGC GGC CCG Asp Thr Gly Thr Ala Arg Asp His Thr Trp Ala Val Ala Gly Gly Pro 1245 1250 1255			18127
40	GGC GAC CTG TTA CCC GGG GAG ACC CCG CAC CAC CCC GAC CTC GCC TCC Gly Asp Leu Leu Pro Gly Glu Thr Pro His His Pro Asp Leu Ala Ser 1260 1265 1270 1275			18175
45	GCG CTC GCC GAC ACC GGC ACC GCC CCC TTC CGC GTA CTG GCG GAT CTG Ala Leu Ala Asp Thr Gly Thr Ala Pro Phe Arg Val Leu Ala Asp Leu 1280 1285 1290			18223
	CGC GGA TAC GGC ACC GCC ACC CCC CGG GAA CTC GCC TCC CAG GCG CTC Arg Gly Tyr Gly Thr Ala Thr Pro Arg Glu Leu Ala Ser Gln Ala Leu 1295 1300 1305			18271
50	GCC CTC GTC CAG CAG TGG GCC GAC GCG GCC GAG GCC GCC GAA GGC AGG Ala Leu Val Gln Gln Trp Ala Asp Ala Ala Glu Ala Ala Glu Gly Arg 1310 1315 1320			18319
55	CTC GTC CTG GTG ACA CGC CGG GCC GTC GAC ATC GGT GAC GGC GTC ACG Leu Val Leu Val Thr Arg Arg Ala Val Asp Ile Gly Asp Gly Val Thr			18367

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	1325	1330	1335	
5	GAC CCG GCG GCG GCG ACC GTG TGG GGA CTG GTC CGG GCG GCA CAG TCC Asp Pro Ala Ala Ala Thr Val Trp Gly Leu Val Arg Ala Ala Gln Ser 1340 1345 1350 1355			18415
	GAG CAC CCC GGG TGC TTC GCG CTC CTC GAC ACC GAC GAC TCC CCC CGC Glu His Pro Gly Cys Phe Ala Leu Leu Asp Thr Asp Asp Ser Pro Arg 1360 1365 1370			18463
10	TCC CGG CAA CTC CTG CCA CGC GTC GCG GGC ACC GCC GAG CAG CTC GCA Ser Arg Gln Leu Leu Pro Arg Val Ala Gly Thr Ala Glu Gln Leu Ala 1375 1380 1385			18511
15	CTC CGC GAC GGC ACC CTG CTC GCC CCC TCC CTC ACC CGT GCC ACG CTG Leu Arg Asp Gly Thr Leu Leu Ala Pro Ser Leu Thr Arg Ala Thr Leu 1390 1395 1400			18559
20	CCC GCC GGC GCC CGG CTG CCC GCA CTC GAC GGC ACC GTC CTG ATC ACT Pro Ala Gly Ala Arg Leu Pro Ala Leu Asp Gly Thr Val Leu Ile Thr 1405 1410 1415			18607
	GGG GGC ACC GGC AGC CTC GGC GCG GAG GCG GCC CGC CAT CTG GTC ACC Gly Gly Thr Gly Ser Leu Gly Ala Glu Ala Ala Arg His Leu Val Thr 1420 1425 1430 1435			18655
25	CGG CAC GGT GCC CGG CGC CTG CTC CTG ACC AGC CGA AGC GGC CCG CAG Arg His Gly Ala Arg Arg Leu Leu Leu Thr Ser Arg Ser Gly Pro Gln 1440 1445 1450			18703
30	GCC CCC GGC GCG GCC GAA CTC GTC GCC GAA CTG GCC GCC TTG GGC GCC Ala Pro Gly Ala Ala Glu Leu Val Ala Glu Leu Ala Ala Leu Gly Ala 1455 1460 1465			18751
35	CAC GCG GAC GTG GCC GCC TGC GAC GTC GCC GAC CGC GCC GCC CTG CGG His Ala Asp Val Ala Ala Cys Asp Val Ala Asp Arg Ala Ala Leu Arg 1470 1475 1480			18799
	GCC CTG CTC GAC CGC GTA CCC GCC GGC CAC CCG CTG ACC GCG GTC CTG Ala Leu Leu Asp Arg Val Pro Ala Gly His Pro Leu Thr Ala Val Leu 1485 1490 1495			18847
40	CAC ACG GCG GGC GTC CTG GAC GAC GGC GTC CTC ACC GCC CAG ACA CCG His Thr Ala Gly Val Leu Asp Asp Gly Val Leu Thr Ala Gln Thr Pro 1500 1505 1510 1515			18895
45	CAG CGG CTC GCG GCC GTC CTC CGC CCG AAG GCC GAC GCC GTA CGC AAT Gln Arg Leu Ala Ala Val Leu Arg Pro Lys Ala Asp Ala Val Arg Asn 1520 1525 1530			18943
	CTG CAC GAA CTC ACC CAG GGG CAC GCC CTG TCG GCG TTC ATC CTC TAC Leu His Glu Leu Thr Gln Gly His Ala Leu Ser Ala Phe Ile Leu Tyr 1535 1540 1545			18991
50	TCG TCG GCC GCC GGA GTG CTC GGC AGC GCG GGC CAG AGC GGC TAC GCC Ser Ser Ala Ala Gly Val Leu Gly Ser Ala Gly Gln Ser Gly Tyr Ala 1550 1555 1560			19039
55	GCC GCC AAC GCC TAC CTG GAC TCC TTC GCC GTC TGG CGG CGG AGC CGG Ala Ala Asn Ala Tyr Leu Asp Ser Phe Ala Val Trp Arg Arg Ser Arg			19087

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	1565	1570	1575	
5	GGA CTG CCC GCC GTA TCG CTC GGC TGG GGC CCG TGG GAC GGC GGC GGC Gly Leu Pro Ala Val Ser Leu Gly Trp Gly Pro Trp Asp Gly Gly Gly 1580 1585 1590 1595			19135
	ATG GCG AGC GGA CTC GGC GGA ACC GAC ACG GCC CGG CTG CGG CGC AGC Met Ala Ser Gly Leu Gly Gly Thr Asp Thr Ala Arg Leu Arg Arg Ser 1600 1605 1610			19183
10	GGC ATC GCA CCC CTC AGC CGC GCC GAG GGC CTG GCC GCG CTC GAC GCG Gly Ile Ala Pro Leu Ser Arg Ala Glu Gly Leu Ala Ala Leu Asp Ala 1615 1620 1625			19231
15	GCG CTC GCG GCC GGC GGC GAC GAC ACC GCG CCG GCC CAC CTG CTG CCG Ala Leu Ala Ala Gly Gly Asp Asp Thr Ala Pro Ala His Leu Leu Pro 1630 1635 1640			19279
20	ATC CGC GTC GAC GCG GTG ACC CTG CGC GGC GCC GAC ACC GTC CCC GCC Ile Arg Val Asp Ala Val Thr Leu Arg Gly Ala Asp Thr Val Pro Ala 1645 1650 1655			19327
	GTG CTG CGC GAC CTG GCG GGA ACC GCG CCA AGC GCC GCC GAA CGG CCC Val Leu Arg Asp Leu Ala Gly Thr Ala Pro Ser Ala Ala Glu Arg Pro 1660 1665 1670 1675			19375
25	CCC GGG ACA CCG GAG GAC ACG AAC GCG CCC CTG GCG GAC GTC ACC CAA Pro Gly Thr Pro Glu Asp Thr Asn Ala Pro Leu Ala Asp Val Thr Gln 1680 1685 1690			19423
30	CTG CAC GGC CGG GAA CGG AAG GAG GCA CTG ACC GGC TTC GTA CGC GCC Leu His Gly Arg Glu Arg Lys Glu Ala Leu Thr Gly Phe Val Arg Ala 1695 1700 1705			19471
	CAG GTG GCC GCG GTG CTC GGC CAC CCC ACG TCC GAC ACG ATC GAC GTC Gln Val Ala Ala Val Leu Gly His Pro Thr Ser Asp Thr Ile Asp Val 1710 1715 1720			19519
35	CGC CGG AGC TTC AAG GAA GCG GGC TTC GAC TCC CTC ACC GCC GTC GAA Arg Arg Ser Phe Lys Glu Ala Gly Phe Asp Ser Leu Thr Ala Val Glu 1725 1730 1735			19567
40	CTG CGC AAC CGG CTG CGC GCC GCC ACC GGG CTG AAG CTG CCC GCC ACG Leu Arg Asn Arg Leu Arg Ala Ala Thr Gly Leu Lys Leu Pro Ala Thr 1740 1745 1750 1755			19615
45	CTG GTG TTC GAC CAC CCG ACC CCC CTC GCG CTC GCC GGC TTC CTC CAC Leu Val Phe Asp His Pro Thr Pro Leu Ala Leu Ala Gly Phe Leu His 1760 1765 1770			19663
	CGC GAA CTC CCC GGC GCC GAA GCC TCC CTG ATG AGC GCG ATC GAC ACT Arg Glu Leu Pro Gly Ala Glu Ala Ser Leu Met Ser Ala Ile Asp Thr 1775 1780 1785			19711
50	CTC CGG CAC CGG CTG CGC GAC GCC CTG GCC GAC GAC GCC GCA GAC GAC Leu Arg His Arg Leu Arg Asp Ala Leu Ala Asp Asp Ala Ala Asp Asp 1790 1795 1800			19759
55	GCC CTG CGC GAC CAG ATC ACC CGA CGA CTC GAG ACC CTG CTG GCC GGC Ala Leu Arg Asp Gln Ile Thr Arg Arg Leu Glu Thr Leu Leu Ala Gly			19807

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	1805	1810	1815	
5	ATA GCC CGG ACC GAG GAG CCC GCG CCC GCC ACC GCC GCC GCC GAC GAC Ile Ala Arg Thr Glu Glu Pro Ala Pro Ala Thr Ala Ala Ala Asp Asp 1820 1825 1830 1835			19855
	GGG AGC GGA GCC GGT GAT GTC GCG GAA CGA CTG AGC ACC GCG TCG GAC Gly Ser Gly Ala Gly Asp Val Ala Glu Arg Leu Ser Thr Ala Ser Asp 1840 1845 1850			19903
10	GAC GAA CTG TTC GAA CTG CTC GAC AGC GGT TTC ACA CCC TGA CCGGCCGGCG Asp Glu Leu Phe Glu Leu Leu Asp Ser Gly Phe Thr Pro * 1855 1860 1865			19955
15	GACCGGCACC ACGACATCGA GGCGACCGCA CCGAACACCC CCAGGGGGAA AGCT			20009
	GTG TCC ACC GAG AAC TCC ACC AAC GTC CCG GCG AGC GAG Met Ser Thr Glu Asn Ser Thr Asn Val Pro Ala Ser Glu 1 5 10			20048
20	GAC AAG CTC CGC GCC TAT CTG CGT CGC GCG ATG GCC GAC CTC CAC GAG Asp Lys Leu Arg Ala Tyr Leu Arg Arg Ala Met Ala Asp Leu His Glu 15 20 25			20096
25	TCC CGC GAA CGG CTC CGC GCC ACG GAA GCG CGC GCC CAG GAG CCG ATC Ser Arg Glu Arg Leu Arg Ala Thr Glu Ala Arg Ala Gln Glu Pro Ile 30 35 40 45			20144
	GCG GTG GTG GGT ATG GGG TGC CGG TTC CCC GGT GGG GTG GGT TCG CCG Ala Val Val Gly Met Gly Cys Arg Phe Pro Gly Gly Val Gly Ser Pro 50 55 60			20192
30	GAG GCG TTG TGG CGG TTG GTG GTG GAG GGG GTG GAC GCG GTT TCC CCG Glu Ala Leu Trp Arg Leu Val Val Glu Gly Val Asp Ala Val Ser Pro 65 70 75			20240
35	TTT CCC GGT GAT CGT GGC TGG GAT GTG GAG GGG TTG TAC GAC CCG GAG Phe Pro Gly Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Glu 80 85 90			20288
40	CCG GGT GTG GCG GGG AAG TCG TAT GTG CGG GAG GGG GGT TTT CTG CAT Pro Gly Val Ala Gly Lys Ser Tyr Val Arg Glu Gly Gly Phe Leu His 95 100 105			20336
	GAT GCG GCG GAG TTC GAT GCG GAG TTC TTC GGG ATT TCG CCG CGT GAG Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu 110 115 120 125			20384
45	GCG GTG GCG ATG GAT CCG CAG CAG CGG CTG TTG CTG GAG ACC TCC TGG Ala Val Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp 130 135 140			20432
50	GAG GCG ATC GAG CGG GCG GGT ATC GAC CCG CAT TCG CTG CAC GGC AGC Glu Ala Ile Glu Arg Ala Gly Ile Asp Pro His Ser Leu His Gly Ser 145 150 155			20480
55	CGC ACC GGC GTC TAC GCC GGC GTG ATG TAC CAC GAC TAT GGC ACG GGA Arg Thr Gly Val Tyr Ala Gly Val Met Tyr His Asp Tyr Gly Thr Gly 160 165 170			20528

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	CAG ACC TCC GCG ACC GAC ACG AGC GGT TAT TCC GGC ACC GGT ACG TCG Gln Thr Ser Ala Thr Asp Thr Ser Gly Tyr Ser Gly Thr Gly Thr Ser 175 180 185	20576
5	GGG AGT GTG GTG TCG GGG CGT GTG GCC TAC ACG CTG GGG CTG GAG GGT Gly Ser Val Val Ser Gly Arg Val Ala Tyr Thr Leu Gly Leu Glu Gly 190 195 200 205	20624
10	CCG GCC GTG ACC GTG GAT ACG GCG TGT TCG TCG TCG TTG GTG GCG TTG Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu 210 215 220	20672
15	CAT CTG GCG GTG CAG GCG TTG CGG GGT GGC GAG TGT GAC ATG GCG TTG His Leu Ala Val Gln Ala Leu Arg Gly Gly Glu Cys Asp Met Ala Leu 225 230 235	20720
	GCC GGT GGT GTG ACG GTG ATG GCC GGG CCG GGG ATG TTC GTG GAG TTT Ala Gly Gly Val Thr Val Met Ala Gly Pro Gly Met Phe Val Glu Phe 240 245 250	20768
20	TCG CGG CAG CGG GGG TTG GCG GCC GAT GGG CGG TGC AAG GCG TTC GCG Ser Arg Gln Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ala 255 260 265	20816
25	GAT GGG GCG GAT GGG ACC GCT TGG GCC GAG GGT GCG GGG GTG GTG CTG Asp Gly Ala Asp Gly Thr Ala Trp Ala Glu Gly Ala Gly Val Val Leu 270 275 280 285	20864
	GTG GAG CGG TTG TCG GAT GCC CGG CGG TTG GGG CAT CCG GTG TTG GCG Val Glu Arg Leu Ser Asp Ala Arg Arg Leu Gly His Pro Val Leu Ala 290 295 300	20912
30	GTG GTG TGT GGG TCG GCG GTG AAT CAG GAC GGT GCG TCG AAT GGT TTG Val Val Cys Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu 305 310 315	20960
35	ACG GCG CCG AGT GGT CCG TCG CAG GAG CGG GTG ATT CGT CAG GCG TTG Thr Ala Pro Ser Gly Pro Ser Gln Glu Arg Val Ile Arg Gln Ala Leu 320 325 330	21008
40	GCG AAT GCG CGG TTG ACG GTG GCG GAT GTG GAT GTG GTG GAG GCG CAT Ala Asn Ala Arg Leu Thr Val Ala Asp Val Asp Val Val Glu Ala His 335 340 345	21056
	GGG ACG GGG ACG CGG CTG GGT GAT CCG ATC GAG GCG CAG GCG TTG CTG Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu 350 355 360 365	21104
45	GGG ACG TAT GGG CGG GAT CGT GAT GGT GGG CGT CCG GTG TGG TTG GGG Gly Thr Tyr Gly Arg Asp Arg Asp Gly Gly Arg Pro Val Trp Leu Gly 370 375 380	21152
50	TCG TTG AAG TCG AAT ATT GGT CAT GCT CAG GCG GCT GCG GGG GTG GCT Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Ala 385 390 395	21200
55	GGT GTG ATC AAG ATG GTG TTG GCG ATG CGG TAT GGG TGG TTG CCG CGG Gly Val Ile Lys Met Val Leu Ala Met Arg Tyr Gly Trp Leu Pro Arg 400 405 410	21248

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	ACG TTG CAT GTG GAT GAG CCG AGC CGG CAT GTG GAC TGG TCG GCT GGT Thr Leu His Val Asp Glu Pro Ser Arg His Val Asp Trp Ser Ala Gly 415 420 425	21296
5	GGT GTG TGG TTG CTG ACC GAG GCG CGG GAG TGG CCG GGG GTG GAC CGG Gly Val Trp Leu Leu Thr Glu Ala Arg Glu Trp Pro Gly Val Asp Arg 430 435 440 445	21344
10	CCG CGT CGG GCG GCG GTC TCC GCC TTT GGT GTC AGT GGT ACC AAC GCC Pro Arg Arg Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn Ala 450 455 460	21392
15	CAT CTG ATC CTC GAA GCC CCC GAC ACC GCC GAG GCG GAG AGC GCC ACG His Leu Ile Leu Glu Ala Pro Asp Thr Ala Glu Ala Glu Ser Ala Thr 465 470 475	21440
	ACC CCG GTC CGC TCT GAG GTG TCG GAG TCT GCT GCG GTC TTC GAT GCC Thr Pro Val Arg Ser Glu Val Ser Glu Ser Ala Ala Val Phe Asp Ala 480 485 490	21488
20	CGC AGT GGT GTG GTG CCG GTG GTG GTT TCG GGG CGT TCG CGG GTG GTG Arg Ser Gly Val Val Pro Val Val Val Ser Gly Arg Ser Arg Val Val 495 500 505	21536
25	GTG CCG GAG GCT GCG GGC CGG TTG GCG GAG GTG GTG GAG GCC GGT GGT Val Arg Glu Ala Ala Gly Arg Leu Ala Glu Val Val Glu Ala Gly Gly 510 515 520 525	21584
	GTG GGG CTG GCG GAT GTG GCG GTG ACG ATG GCG GGC CGG TCG CGG TTT Val Gly Leu Ala Asp Val Ala Val Thr Met Ala Gly Arg Ser Arg Phe 530 535 540	21632
30	GGG TAT CGG GCG GTT GTG CTG GCT CGG GGT GAG GCT GAG CTT GCC GGG Gly Tyr Arg Ala Val Val Leu Ala Arg Gly Glu Ala Glu Leu Ala Gly 545 550 555	21680
35	CGT TTG CGG GCG TTG GCG GGG GGT GAT CCG GAC GCG GGT GTG GTC ACG Arg Leu Arg Ala Leu Ala Gly Gly Asp Pro Asp Ala Gly Val Val Thr 560 565 570	21728
40	GGT GCG GTG GTG GAC CCG GAG ACG GCG TCC GGT GGT GGG GGG GTG CTG Gly Ala Val Val Asp Pro Glu Thr Gly Ser Gly Gly Gly Gly Val Val 575 580 585	21776
	TTG GTT TTC CCT GGT CAG GGG ACG CAG TGG GTG GGG ATG GGT GCG GGG Leu Val Phe Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala Gly 590 595 600 605	21824
45	CTG CTG GGG TCT TCG GAG GTG TTT GCG GCG TCG ATG CGG GAG TGT GCG Leu Leu Gly Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys Ala 610 615 620	21872
50	CGG GCG CTG AGT GTT CAT GTG GGG TGG GAT TTG CTG GAG GTG GTG TCG Arg Ala Leu Ser Val His Val Gly Trp Asp Leu Leu Glu Val Val Ser 625 630 635	21920
55	GGC GGG GCC GGG TTG GAG CCG GTG GAT GTG GTG CAG CCG GTG ACG TGG Gly Gly Ala Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Trp 640 645 650	21968

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	GCG GTG ATG GTG TCG CTG GCC CGG TAC TGG CAG GCG ATG GGT GTG GAC Ala Val Met Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val Asp 655 660 665	22016
5	GTG GCT GCG GTG GTG GGT CAT TCC CAG GGG GAG ATC GCT GCT GCC ACG Val Ala Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Thr 670 675 680 685	22064
10	GTG GCG GGG GCG TTG TCG CTG GAG GAT GCG GCG GCT GTG GTC GCT CTG Val Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala Leu 690 695 700	22112
15	CGG GCG GGG TTG ATT GGC CGG TAT CTG GCG GGT CGT GGT GCG ATG GCG Arg Ala Gly Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met Ala 705 710 715	22160
	GCT GTT CCG CTG CCT GCC GGC GAG GTC GAG GCC GGG CTG GCG AAG TGG Ala Val Pro Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys Trp 720 725 730	22208
20	CCG GGT GTG GAG GTC GCG GCG GTC AAC GGT CCG GCG TCT ACG GTG GTT Pro Gly Val Glu Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val Val 735 740 745	22256
25	TCC GGG GAT CGG CGG GCG GTG GCC GGT TAT GTG GCC GTC TGT CAG GCG Ser Gly Asp Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln Ala 750 755 760 765	22304
	GAG GGT GTG CAG GCT CGG TTG ATA CCG GTG GAC TAC GCC TCT CAC TCC Glu Gly Val Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His Ser 770 775 780	22352
30	CGC CAT GTG GAG GAC CTG AAG GGC GAG TTG GAG CGG GTG CTG TCC GGT Arg His Val Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser Gly 785 790 795	22400
35	ATC CGC CCG CGC AGT CCG CGG GTG CCG GTG TGT TCC ACC GTC GCC GGA Ile Arg Pro Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala Gly 800 805 810	22448
40	GAG CAG CCG GGC GAG CCG GTT TTC GAT GCG GGG TAT TGG TTC CGT AAT Glu Gln Pro Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn 815 820 825	22496
	CTG CGG AAC CGG GTT GAG TTC TCC GCG GTG GTC GGT GGT TTG TTG GAG Leu Arg Asn Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu 830 835 840 845	22544
45	GAG GGC CAC CGT CGG TTC ATC GAG GTC AGT GCC CAC CCG GTA CTC GTT Glu Gly His Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu Val 850 855 860	22592
50	CAT GCC ATT GAG CAG ACG GCC GAG GCC GCG GAC CGG AGT GTC CAT GCC His Ala Ile Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala 865 870 875	22640
55	ACC GGG ACC CTG CGC CGC CAG GAC GAC AGC CCG CAC CGC CTG CTG ACC Thr Gly Thr Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr 880 885 890	22688

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	TCC ACC GCC GAG GCC TGG GCC CAC GGC GCC ACC CTC ACC TGG GAC CCC Ser Thr Ala Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro 895 900 905	22736
5	GCC CTG CCC CCA GGC CAC CTC ACC ACC CTC CCC ACC TAC CCC TTC AAC Ala Leu Pro Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn 910 915 920 925	22784
10	CAC CAC CAC TAC TGG CTC GAC ACC ACC CCC ACC ACC CCC GCG ACG ACC His His His Tyr Trp Leu Asp Thr Thr Pro Thr Thr Pro Ala Thr Thr 930 935 940	22832
15	ACC CAG AGC CCC ACC GAT GCC CAG AAC CCC GCC GAC GCC CTT CCC TAC Thr Gln Ser Pro Thr Asp Ala Gln Asn Pro Ala Asp Ala Leu Pro Tyr 945 950 955	22880
	AAG GTG AGT TGG AAG CGG TTG CGG GAC CAG GAC AGC TTG ACC GCG CGC Lys Val Ser Trp Lys Arg Leu Arg Asp Gln Asp Ser Leu Thr Ala Arg 960 965 970	22928
20	CTC GAC GGC CGA TGG CTG CTG GTG GTA CCG GAG GCG TCG GCG GAC CCG Leu Asp Gly Arg Trp Leu Leu Val Val Pro Glu Ala Ser Ala Asp Pro 975 980 985	22976
25	TCG GTT GCT GAG GGC GTC GCG CGC GAG CTG ACC GCG CGG GGC GCG ACC Ser Val Ala Glu Gly Val Ala Arg Glu Leu Thr Ala Arg Gly Ala Thr 990 995 1000 1005	23024
	GTG GAG TCG CTG ACG GTC GAG CCG GGC GCC GAC CGT TCG CGG CTG CGC Val Glu Ser Leu Thr Val Glu Pro Gly Ala Asp Arg Ser Arg Leu Arg 1010 1015 1020	23072
30	GGG CTG CTG GTC GAC GCC ACG GAA CGG GAC GAA GCC GGG CCG CTG CGC Gly Leu Leu Val Asp Ala Thr Glu Arg Asp Glu Ala Gly Pro Leu Arg 1025 1030 1035	23120
35	GGG ATC GTC TCG CTG CTG GCG TTG GCC GGG GAC CAC GCC GGG GCC GAC Gly Ile Val Ser Leu Leu Ala Leu Ala Gly Asp His Ala Gly Ala Asp 1040 1045 1050	23168
40	GGG GCA CGC CCG GTG GTT CCG GCC GGC CTG GCA GCG TCA CTG GCG CTG Gly Ala Arg Pro Val Val Pro Ala Gly Leu Ala Ala Ser Leu Ala Leu 1055 1060 1065	23216
	ATC CAG GCC GCG GGC GAC GCG GGC ACG GAG GCC GGG CTG TGG GCG GTG Ile Gln Ala Ala Gly Asp Ala Gly Thr Glu Ala Gly Leu Trp Ala Val 1070 1075 1080 1085	23264
45	ACC CGC GGC GCC GTC GCG GCC GTG CCC GGT GAC GTA CCG GCG CCG TCG Thr Arg Gly Ala Val Ala Ala Val Pro Gly Asp Val Pro Ala Pro Ser 1090 1095 1100	23312
50	CAG GCG CTG CTC TGG GGA TTC GGC CGG GTG GCC GGG ATC GAG CTG CCG Gln Ala Leu Leu Trp Gly Phe Gly Arg Val Ala Gly Ile Glu Leu Pro 1105 1110 1115	23360
55	CAC TGC TGG GGC GGC CTG CTC GAC CTG CCG ACC GGG CCC GGC GAC TCC His Cys Trp Gly Gly Leu Leu Asp Leu Pro Thr Gly Pro Gly Asp Ser 1120 1125 1130	23408

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	GGG TTC CGG CAA CTG GCC GCG ACC CTG GCG GGC CGT CCC GCG GAG GAC	23456
	Gly Phe Arg Gln Leu Ala Ala Thr Leu Ala Gly Arg Pro Ala Glu Asp	
	1135 1140 1145	
5	CAG GTG GCG CTG CCG GCT TCG GGC GCG TAC GGC CGC AGG CTG GTC CCG	23504
	Gln Val Ala Leu Arg Ala Ser Gly Ala Tyr Gly Arg Arg Leu Val Arg	
	1150 1155 1160 1165	
10	GCC TCC GCG GCG GGC GGC GCG GAC GGC TGG CCG CCG CGG GGA ACG GTG	23552
	Ala Ser Ala Ala Gly Gly Ala Asp Gly Trp Arg Pro Arg Gly Thr Val	
	1170 1175 1180	
15	CTG GTG GTG GGC GAC ACC GCG GAG GTC GCC GGA CCG CTG GTG CCG TGG	23600
	Leu Val Val Gly Asp Thr Ala Glu Val Ala Gly Pro Leu Val Arg Trp	
	1185 1190 1195	
20	CTG CTC GGC AAC GGC GCA CCG CCG GTG ACC CTG TCC GGA CTC TCC GGC	23648
	Leu Leu Gly Asn Gly Ala Arg Arg Val Thr Leu Ser Gly Leu Ser Gly	
	1200 1205 1210	
25	CCG CTG CCG GAG GAA CTC GCC GAT GTG GCG GCA CCG GTG ACC GTG GCG	23696
	Pro Leu Pro Glu Glu Leu Ala Asp Val Ala Ala Arg Val Thr Val Ala	
	1215 1220 1225	
30	CCC TGT GAT CCG GCC GAT CGC CCC GCC CTG CCG ACG CTG CTC GCC GAA	23744
	Pro Cys Asp Pro Ala Asp Arg Pro Ala Leu Arg Thr Leu Leu Ala Glu	
	1230 1235 1240 1245	
35	CAG GCG CCG ACC GCC GTG CTC GTG GCG CCC CCG GCC GTC CCG CCC ACG	23792
	Gln Ala Pro Thr Ala Val Leu Val Ala Pro Pro Ala Val Pro Pro Thr	
	1250 1255 1260	
40	CCG CTC GCG GAG ATG ACC GCC GAG GCG TTA GCC ATC GCG CTG TCC GCG	23840
	Pro Leu Ala Glu Met Thr Ala Glu Ala Leu Ala Ile Ala Leu Ser Ala	
	1265 1270 1275	
45	AAG ACC GGT CTG GTC GAC CGT CTG GAC TCG CTG CTC GAC GAG CCG GAC	23888
	Lys Thr Gly Leu Val Asp Arg Leu Asp Ser Leu Leu Asp Glu Pro Asp	
	1280 1285 1290	
50	CCC CTG CTC GAG GAC GGG GAA CTC GAC GCG TTC GTC GTC TTC TCC TCC	23936
	Pro Leu Leu Glu Asp Gly Glu Leu Asp Ala Phe Val Val Phe Ser Ser	
	1295 1300 1305	
55	GTG GCA GGG GTG TGG GGC GGC GCG GGA CAG GGT GGT TAC GCG GCC GGT	23984
	Val Ala Gly Val Trp Gly Gly Ala Gly Gln Gly Gly Tyr Ala Ala Gly	
	1310 1315 1320 1325	
60	ACC GCG TAC CTC GAC GCG CTC GCC GAA TGC CCG CCG GCC GGG GGG CTG	24032
	Thr Ala Tyr Leu Asp Ala Leu Ala Glu Cys Arg Arg Ala Gly Gly Leu	
	1330 1335 1340	
65	CCG GTC ACC TCG GTG GCG TGG ACG CCG TGG CTC GGT ACG CCG GCG GCG	24080
	Pro Val Thr Ser Val Ala Trp Thr Pro Trp Leu Gly Thr Pro Ala Ala	
	1345 1350 1355	
70	GAC TCC CTG GGC GAG CAG ATG AGC CGA GCT GGC ATC ACC CCC CTG GAT	24128
	Asp Ser Leu Gly Glu Gln Met Ser Arg Ala Gly Ile Thr Pro Leu Asp	
	1360 1365 1370	

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	CCG GCG GCC TCG CTG GAT GCG CTC GCC CGT GCG GTG GGC CGG CGC GCG	24176
	Pro Ala Ala Ser Leu Asp Ala Leu Ala Arg Ala Val Gly Arg Arg Ala	
	1375 1380 1385	
5	GGC TGT GTG ACG GTC GCC GAC ATC GAC TGG GAG CGG TTC GCC TCC GCG	24224
	Gly Cys Val Thr Val Ala Asp Ile Asp Trp Glu Arg Phe Ala Ser Ala	
	1390 1395 1400 1405	
10	TAC ACG GCC ACC CGT CCC ACG CCG ATG TTC GAC GAG GTG CCC GAG GTG	24272
	Tyr Thr Ala Thr Arg Pro Thr Pro Met Phe Asp Glu Val Pro Glu Val	
	1410 1415 1420	
15	CGG CGG ATA CAG GCC GCG TGG GCG GAA GCG GAG GCC GAC GCC GCG CGC	24320
	Arg Arg Ile Gln Ala Ala Trp Ala Glu Ala Glu Ala Asp Ala Ala Arg	
	1425 1430 1435	
20	AGC GGT GCC GGC GGC GAC TCG CAG CTG CTG CGC TCC CTC CGG GGC CGG	24368
	Ser Gly Ala Gly Gly Asp Ser Gln Leu Leu Arg Ser Leu Arg Gly Arg	
	1440 1445 1450	
25	CCC GAG GAG GCC CAA CTG GCG GAG CTG CTG CGG CTG GTG CGC ACC CAT	24416
	Pro Glu Glu Ala Gln Leu Ala Glu Leu Leu Arg Leu Val Arg Thr His	
	1455 1460 1465	
30	GCC GCC GCG GTG CTC GGC CTG GGC TCG CCC GGC GCG GTG GAG GCG CGG	24464
	Ala Ala Ala Val Leu Gly Leu Gly Ser Pro Gly Ala Val Glu Ala Arg	
	1470 1475 1480 1485	
35	CGT TCG TTC AAG GAC CTG GGC TTC AAC TCG GTG ACG GCG GTG GAG CTG	24512
	Arg Ser Phe Lys Asp Leu Gly Phe Asn Ser Val Thr Ala Val Glu Leu	
	1490 1495 1500	
40	CGG AAC CGG CTG AAG GAG GCG ACG GGA CTC CGG CTG GAG GTG TCC CTG	24560
	Arg Asn Arg Leu Lys Glu Ala Thr Gly Leu Arg Leu Glu Val Ser Leu	
	1505 1510 1515	
45	GTC TTC GAC CAC CCG GAC CCG GCC TCC CTC GCC CGG CAT CTG CTG GAT	24608
	Val Phe Asp His Pro Asp Pro Ala Ser Leu Ala Arg His Leu Leu Asp	
	1520 1525 1530	
50	CTC GCC CTC GGC CAG GAG CCG GAG GAG ACG CCG CGG GCG TTC GCG CTC	24656
	Leu Ala Leu Gly Gln Glu Pro Glu Glu Thr Pro Arg Ala Phe Ala Leu	
	1535 1540 1545	
55	GAA CCC GCG CCG AAC GGG GAG CCG ATC GCG ATC GTG TCC ATG GCC TGC	24704
	Glu Pro Ala Pro Asn Gly Glu Pro Ile Ala Ile Val Ser Met Ala Cys	
	1550 1555 1560 1565	
60	CGT ATG CCG GGG GGT GTC AGC ACG CCC GAG GAG CTG TGG CGG CTG CTG	24752
	Arg Met Pro Gly Gly Val Ser Thr Pro Glu Glu Leu Trp Arg Leu Leu	
	1570 1575 1580	
65	CGG GAC GGC AAG GAC GCG ATC GGG CCG TTC CCC GCC AAC CGG GGC TGG	24800
	Arg Asp Gly Lys Asp Ala Ile Gly Pro Phe Pro Ala Asn Arg Gly Trp	
	1585 1590 1595	
70	GAC CTG GAG AAC CTC TAC GAC CCC GAC CCG GAC GCC GAC GGC CGC ACC	24848
	Asp Leu Glu Asn Leu Tyr Asp Pro Asp Pro Asp Ala Asp Gly Arg Thr	
	1600 1605 1610	

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	TAT GTG CGC GAG GGC GGA TTC CTC CAC GAG GCA CCG GAC TTC GAC CCC	24896
	Tyr Val Arg Glu Gly Gly Phe Leu His Glu Ala Pro Asp Phe Asp Pro	
	1615 1620 1625	
5	TCG TTC TTC GGC ATC TCG CCG CGC GAG GCG CTG GCG ATG GAC CCG CAG	24944
	Ser Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln	
	1630 1635 1640 1645	
10	CAG CGG CTG CTG CTG GAG ACT TCC TGG GAG GCC TTG GAG CGC GCC GGC	24992
	Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly	
	1650 1655 1660	
15	ATC GAC CCG GCG AGG CTG CGC GGC AGC CGT ACC GGC GTC TTC GTC GGG	25040
	Ile Asp Pro Ala Arg Leu Arg Gly Ser Arg Thr Gly Val Phe Val Gly	
	1665 1670 1675	
	ACG AAC GGC CAG CAC TAC ATG CCG CTG CTC CAG AAC GGC GGC GAC AGC	25088
	Thr Asn Gly Gln His Tyr Met Pro Leu Leu Gln Asn Gly Gly Asp Ser	
	1680 1685 1690	
20	TTC GAC GGC TAT CTG GGC ACC GGC AAC TCG GCG AGT GTG ATG TCG GGC	25136
	Phe Asp Gly Tyr Leu Gly Thr Gly Asn Ser Ala Ser Val Met Ser Gly	
	1695 1700 1705	
25	CGG CTG TCG TAC GTG TTC GGC CTC GAA GGC CCC GCC GTG ACC GTG GAC	25184
	Arg Leu Ser Tyr Val Phe Gly Leu Glu Gly Pro Ala Val Thr Val Asp	
	1710 1715 1720 1725	
30	ACC GCC TGC TCG GCG TCC CTG GTG GCG CTG CAC CTG GCG GTG CAG GCG	25232
	Thr Ala Cys Ser Ala Ser Leu Val Ala Leu His Leu Ala Val Gln Ala	
	1730 1735 1740	
	ATG CGG CGC GGC GAG TGC GAC ATG GCG CTG GTC GGC GGC GCG ACC GTG	25280
	Met Arg Arg Gly Glu Cys Asp Met Ala Leu Val Gly Gly Ala Thr Val	
	1745 1750 1755	
35	ATG TCG ACG CCC GAG ATG CTG GTG GAG TTC TCC CGG CAG CGG GTG ATC	25328
	Met Ser Thr Pro Glu Met Leu Val Glu Phe Ser Arg Gln Arg Val Ile	
	1760 1765 1770	
40	TCC GCC AAC GGC CGG TCG AGG GCC TTC GCC GCC GGT GCC GAC GGT GTG	25376
	Ser Ala Asn Gly Arg Ser Arg Ala Phe Ala Ala Gly Ala Asp Gly Val	
	1775 1780 1785	
45	GCG CTC GGC GAG GGC GTG GGC GTC CTG CTG GTG GAG CGG CTG TCG GAC	25424
	Ala Leu Gly Glu Gly Val Gly Val Leu Leu Val Glu Arg Leu Ser Asp	
	1790 1795 1800 1805	
	GCC GAG CGC AAC GGC CAT CCG GTG CTG GCG GTG GTC CGC GGC TCG GCG	25472
	Ala Glu Arg Asn Gly His Pro Val Leu Ala Val Val Arg Gly Ser Ala	
	1810 1815 1820	
50	GTC AAC CAG GAC GGC GCC TCC AAC GGG CTG ACG GCG CCC AAC GGG CCC	25520
	Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro	
	1825 1830 1835	
55	TCC CAG CAG CGG GTG ATC CGG CAG GCG CTG GCG GAC GCC GGG CTG CGG	25568
	Ser Gln Gln Arg Val Ile Arg Gln Ala Leu Ala Asp Ala Gly Leu Arg	
	1840 1845 1850	

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	CCC GAG GAC ATC GAC GCC GTC GAG GCG CAC GGC ACC GGC ACC GAG CTG Pro Glu Asp Ile Asp Ala Val Glu Ala His Gly Thr Gly Thr Glu Leu 1855 1860 1865	25616
5	GGC GAC CCC ATC GAG GCC GAG GCG CTG CTC GCC ACC TAT GGA AGG ACC Gly Asp Pro Ile Glu Ala Glu Ala Leu Leu Ala Thr Tyr Gly Arg Thr 1870 1875 1880 1885	25664
10	CGT ACG GCG GAC CGC CCG CTG TGG CTC GGC TCC CTG AAG TCC AAC ATC Arg Thr Ala Asp Arg Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile 1890 1895 1900	25712
15	GGG CAC ACC CAG GCC GCC GCC GGC GTG GCG GGC GTC ATC AAG ATG GTG Gly His Thr Gln Ala Ala Ala Gly Val Ala Gly Val Ile Lys Met Val 1905 1910 1915	25760
	CTC GCG CTG GGC AAC GAG ACA CTG CCG CGC ACC CTG CAC GTG GAT GAG Leu Ala Leu Gly Asn Glu Thr Leu Pro Arg Thr Leu His Val Asp Glu 1920 1925 1930	25808
20	CCC ACA CCG CGC GTG GAC TGG TCC TCT GGC GCG GTC TCC CTG CTC ACC Pro Thr Pro Arg Val Asp Trp Ser Ser Gly Ala Val Ser Leu Leu Thr 1935 1940 1945	25856
25	GAG CCG GTG GAC TGG CCC GCC GGC CCG TCC GCG CCG CGC CGT GCG GCC Glu Pro Val Asp Trp Pro Ala Gly Pro Ser Ala Pro Arg Arg Ala Ala 1950 1955 1960 1965	25904
	GTG TCC TCG TTC GGC ATC AGC GGC ACC AAC GCC CAC ACG ATC CTG GAG Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Thr Ile Leu Glu 1970 1975 1980	25952
30	CAG GCC CCC GTC CCC GCG GAG TCC CGC CCC GGG ACG GAG CCG GCG GAC Gln Ala Pro Val Pro Ala Glu Ser Arg Pro Gly Thr Glu Pro Ala Asp 1985 1990 1995	26000
35	GGC ACG GGC GCG TGG GAG AAC GTG ACC GTT CCG CTG CTG CTG TCC GGC Gly Thr Gly Ala Trp Glu Asn Val Thr Val Pro Leu Leu Leu Ser Gly 2000 2005 2010	26048
40	CAC ACC GAG GCG GCG CTG CGC GAG CAG AGC ACG AGG CTG CTG AAC GAC His Thr Glu Ala Ala Leu Arg Glu Gln Ser Thr Arg Leu Leu Asn Asp 2015 2020 2025	26096
	CTG CTG GAG CAC CCG GAC GAG CAC CCG GCC GAC GTC GGC TAC ACC CTG Leu Leu Glu His Pro Asp Glu His Pro Ala Asp Val Gly Tyr Thr Leu 2030 2035 2040 2045	26144
45	ATC ACC GGC AGG GCC CAC TTC GGG CAC CGG GCC GCC GTG ATC GGC GAG Ile Thr Gly Arg Ala His Phe Gly His Arg Ala Ala Val Ile Gly Glu 2050 2055 2060	26192
50	AGC CCG GAA GAA CTG CTC GAC GCC CTG AAG GCT CTG GCC GAG GGC CGC Ser Arg Glu Glu Leu Leu Asp Ala Leu Lys Ala Leu Ala Glu Gly Arg 2065 2070 2075	26240
55	GAG CAC CAC ACC GTG GTA CGG GGC GAC GGG ACG GCC CAC CCG GAC CGG Glu His His Thr Val Val Arg Gly Asp Gly Thr Ala His Pro Asp Arg 2080 2085 2090	26288

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	CGC GTG GTC TTC GTC TTC CCC GGG CAG GGC TCG CAG TGG CCG TCG ATG	26336
	Arg Val Val Phe Val Phe Pro Gly Gln Gly Ser Gln Trp Pro Ser Met	
	2095 2100 2105	
5	GCC CGG GAC CTG CTC GAC CGC GCG CCC GCC TTC CGC GAG ACG GCG AAG	26384
	Ala Arg Asp Leu Leu Asp Arg Ala Pro Ala Phe Arg Glu Thr Ala Lys	
	2110 2115 2120 2125	
10	GCC TGC GAC GCC GCG CTG AGC GTC CAT CTG GAC TGG TCC GTG CTC GAT	26432
	Ala Cys Asp Ala Ala Leu Ser Val His Leu Asp Trp Ser Val Leu Asp	
	2130 2135 2140	
	GTC CTC CAG GAG AAG CCG GAC GCG CCG CCG CTG AGC CCG GTC GAC GTG	26480
	Val Leu Gln Glu Lys Pro Asp Ala Pro Pro Leu Ser Arg Val Asp Val	
	2145 2150 2155	
15	GTG CAG CCC GTG CTG TTC ACG ATG ATG CTG TCG CTC GCC GCC TGC TGG	26528
	Val Gln Pro Val Leu Phe Thr Met Met Leu Ser Leu Ala Ala Cys Trp	
	2160 2165 2170	
20	CGG GAC CTC GGC GTC CAC CCG GCC GCC GTG GTG GGC CAC TCC CAG GGA	26576
	Arg Asp Leu Gly Val His Pro Ala Ala Val Val Gly His Ser Gln Gly	
	2175 2180 2185	
25	GAG ATC GCG GCG GCC TGC GTG GCC GGC GCG CTC TCC CTG GAG GAC GCG	26624
	Glu Ile Ala Ala Ala Cys Val Ala Gly Ala Leu Ser Leu Glu Asp Ala	
	2190 2195 2200 2205	
	GCG CGG ATC GTG GCG CTG CGC AGC CCG GCA TGG CTC ACA CTG GCC GGC	26672
	Ala Arg Ile Val Ala Leu Arg Ser Arg Ala Trp Leu Thr Leu Ala Gly	
	2210 2215 2220	
30	AAG GGC GGC ATG GCC GCC GTC TCC CTG CCG GAA GCC CCG CTG CGC GAG	26720
	Lys Gly Gly Met Ala Ala Val Ser Leu Pro Glu Ala Arg Leu Arg Glu	
	2225 2230 2235	
35	CGG ATC GAG CGG TTC GGG CAG CGG CTG TCG GTG GCC GCG GTG AAC AGC	26768
	Arg Ile Glu Arg Phe Gly Gln Arg Leu Ser Val Ala Ala Val Asn Ser	
	2240 2245 2250	
40	CCG GGC ACG GCG GCG GTC GCC GGT GAC GTG GAC GCG CTG CCG GAA CTG	26816
	Pro Gly Thr Ala Ala Val Ala Gly Asp Val Asp Ala Leu Arg Glu Leu	
	2255 2260 2265	
	CTG GCG GAG CTG ACC GCG GAG GGC ATC CGG GCC AAG CCG ATC CCC GGC	26864
	Leu Ala Glu Leu Thr Ala Glu Gly Ile Arg Ala Lys Pro Ile Pro Gly	
	2270 2275 2280 2285	
45	GTG GAC ACG GCC GGC CAC TCC GCG CAG GTG GAC GGC CTG AAG GAG CAT	26912
	Val Asp Thr Ala Gly His Ser Ala Gln Val Asp Gly Leu Lys Glu His	
	2290 2295 2300	
50	CTC TTC GAG GTG CTG GCG CCG GTC TCC CCG CGC TCC TCG GAC ATC CCG	26960
	Leu Phe Glu Val Leu Ala Pro Val Ser Pro Arg Ser Ser Asp Ile Pro	
	2305 2310 2315	
55	TTC TAC TCG ACG GTG ACG GGC GCG CCG CTG GAC ACC GAG CGG CTG GAC	27008
	Phe Tyr Ser Thr Val Thr Gly Ala Pro Leu Asp Thr Glu Arg Leu Asp	
	2320 2325 2330	

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	GCC GGG TAC TGG TAC CGC AAC ATG CGG GAG CCC GTG GAG TTC GAG AAG	27056
	Ala Gly Tyr Trp Tyr Arg Asn Met Arg Glu Pro Val Glu Phe Glu Lys	
	2335 2340 2345	
5	GCC GTC AGG GCA CTG ATC GCC GAC GGC TAC GAC CTG TTC CTG GAG TGC	27104
	Ala Val Arg Ala Leu Ile Ala Asp Gly Tyr Asp Leu Phe Leu Glu Cys	
	2350 2355 2360 2365	
10	AAC CCG CAC CCG ATG CTC GCC ATG TCG CTG GAC GAG ACA CTC ACC GAC	27152
	Asn Pro His Pro Met Leu Ala Met Ser Leu Asp Glu Thr Leu Thr Asp	
	2370 2375 2380	
	AGC GGC GGC CAC GGC ACC GTG ATG CAC ACC CTC CGC CGG CAG AAG GGC	27200
	Ser Gly Gly His Gly Thr Val Met His Thr Leu Arg Arg Gln Lys Gly	
	2385 2390 2395	
15	AGC GCC AAG GAC TTC GGC ATG GCG CTC TGC CTC GCC TAT GTC AAC GGA	27248
	Ser Ala Lys Asp Phe Gly Met Ala Leu Cys Leu Ala Tyr Val Asn Gly	
	2400 2405 2410	
20	CTG GAG ATC GAC GGA GAA GCC CTC TTC GGC CCC GAC TCA CGC CGG GTG	27296
	Leu Glu Ile Asp Gly Glu Ala Leu Phe Gly Pro Asp Ser Arg Arg Val	
	2415 2420 2425	
25	AAC CCG CCG ACG TAC CCG TTC CAG CGG GAG CGC TAC TGG TAC CAC CCC	27344
	Asn Pro Pro Thr Tyr Pro Phe Gln Arg Glu Arg Tyr Trp Tyr His Pro	
	2430 2435 2440 2445	
	ACG AGC GGC AGG CGC GGC GAC ATC ACG GCG GCC GGC GTG GCC GAG GCG	27392
	Thr Ser Gly Arg Arg Gly Asp Ile Thr Ala Ala Gly Val Ala Glu Ala	
	2450 2455 2460	
30	GAG CAC CCG CTG CTC GGC GCC GGC GTC GAA CTC CCG GAG ACC GGG GGC	27440
	Glu His Pro Leu Leu Gly Ala Gly Val Glu Leu Pro Glu Thr Gly Gly	
	2465 2470 2475	
35	ACG GTG TAC ACC GCG CGG TTC GGC CCG GAC AGC CGG CCG TGG CTG GCC	27488
	Thr Val Tyr Thr Ala Arg Phe Gly Pro Asp Ser Arg Pro Trp Leu Ala	
	2480 2485 2490	
40	GAC CAC GCG CTG CTG GGC ACC GTG CTG CTG CCC GGC ACG GCA ATC CTC	27536
	Asp His Ala Leu Leu Gly Thr Val Leu Leu Pro Gly Thr Ala Ile Leu	
	2495 2500 2505	
	GAC CTG GTG CTG TGG GCG GGC GAA CGC TCC GGC TGC GGC CGC GTC GGT	27584
	Asp Leu Val Leu Trp Ala Gly Glu Arg Ser Gly Cys Gly Arg Val Gly	
	2510 2515 2520 2525	
45	GAA CTG GCG CTC CAG GCA CCG CTG GTC CTG CCG GAC AGC GGC GAC GTC	27632
	Glu Leu Ala Leu Gln Ala Pro Leu Val Leu Pro Asp Ser Gly Asp Val	
	2530 2535 2540	
50	GAA CTG CGG CTG CTG GTC GGC GGC CCG GAC GAG GAG AAA CGG CGC ACC	27680
	Glu Leu Arg Leu Leu Val Gly Gly Pro Asp Glu Glu Lys Arg Arg Thr	
	2545 2550 2555	
55	GTC ACC GTG CAC GCG CGG CCC GCG GCG GCC GGC GCC GAG GCG CCG TGG	27728
	Val Thr Val His Ala Arg Pro Ala Ala Ala Gly Ala Glu Ala Pro Trp	
	2560 2565 2570	

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	ACC CGG CAC GCC GAA GCC GTG GTG CTG CCC GCC ACC GGC GAG GAG CCG	27776
	Thr Arg His Ala Glu Ala Val Val Leu Pro Ala Thr Gly Glu Glu Pro	
	2575 2580 2585	
5	ACC CCC GCC CCG CGC CCC GTC CCC GAG CCG GCG GGC ACC ACG GAC CCC	27824
	Thr Pro Ala Pro Arg Pro Val Pro Glu Pro Ala Gly Thr Thr Asp Pro	
	2590 2595 2600 2605	
10	GCC GCG TTC TAC GCG GAG TTC GCC GAG CGC GGC TAC GAC TAC GGC CCG	27872
	Ala Ala Phe Tyr Ala Glu Phe Ala Glu Arg Gly Tyr Asp Tyr Gly Pro	
	2610 2615 2620	
15	GCC TTC CAG GGC TTC ACC GCC GGA GCG CGC CAC GGC GAG GAC GTC GTC	27920
	Ala Phe Gln Gly Phe Thr Ala Gly Ala Arg His Gly Glu Asp Val Val	
	2625 2630 2635	
20	GCC GAG GTG GCG CTG CCC AGC GGC CTG GTG GCG GAC GCC CGT CAC CAC	27968
	Ala Glu Val Ala Leu Pro Ser Gly Leu Val Ala Asp Ala Arg His His	
	2640 2645 2650	
25	CGG CTG CAC CCG GCG CTG CTC GAC GCC GCG CTC CAG GCG ATG ATC CTC	28016
	Arg Leu His Pro Ala Leu Leu Asp Ala Ala Leu Gln Ala Met Ile Leu	
	2655 2660 2665	
30	GGC ACG TTC TTT GCC GAC GAC GGC CGC GCC CGG ATG CCG TTC GCG GTG	28064
	Gly Thr Phe Phe Ala Asp Asp Gly Arg Ala Arg Met Pro Phe Ala Val	
	2670 2675 2680 2685	
35	CGC GGA GTA CCG CTG CAC ACG GCC GGC GCC GAC CGG CTG CGC GTC CTG	28112
	Arg Gly Val Arg Leu His Thr Ala Gly Ala Asp Arg Leu Arg Val Leu	
	2690 2695 2700	
40	ATC TCC CCG GCG GGC GAC GAG ACC GTA CCG CTG CTC TGC ACC GAC CTC	28160
	Ile Ser Pro Ala Gly Asp Glu Thr Val Arg Leu Leu Cys Thr Asp Leu	
	2705 2710 2715	
45	GCG ACC GGC GCC CCC GTG CTG GAG ATC GAC GAA CTG GTC GTC CGC CCG	28208
	Ala Thr Gly Ala Pro Val Leu Glu Ile Asp Glu Leu Val Val Arg Pro	
	2720 2725 2730	
50	GTG TCC GGC GAG CAG TTG GCG GCC GGC GCC CCG GGC CGC AAC GGC GGC	28256
	Val Ser Gly Glu Gln Leu Ala Ala Gly Ala Pro Gly Arg Asn Gly Gly	
	2735 2740 2745	
55	GAG CTG TAC CCG GTC GAC TGG ACG GTG CTG CCG GAG CCC GCC GAG GTG	28304
	Glu Leu Tyr Arg Val Asp Trp Thr Val Leu Pro Glu Pro Ala Glu Val	
	2750 2755 2760 2765	
60	CCC GCG CCG CGC TGG GCC CTC CTC GGC GAG GAC CAC GCC GGC CTG GCC	28352
	Pro Ala Pro Arg Trp Ala Leu Leu Gly Glu Asp His Ala Gly Leu Ala	
	2770 2775 2780	
65	GAT GTG CTC GGA GGG ACG GGC GGC GGC TGC GAG CGG TAC GAC ACC CTC	28400
	Asp Val Leu Gly Gly Thr Gly Gly Gly Cys Glu Arg Tyr Asp Thr Leu	
	2785 2790 2795	
70	ACC GGC CTG CTG GAG GCC ACC ACC CGG TCG GCC GGC GGA ATC CTG CCC	28448
	Thr Gly Leu Leu Glu Ala Thr Thr Arg Ser Ala Gly Gly Ile Leu Pro	
	2800 2805 2810	

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	GAC ATC GTC GCG CTC TCC TTG CCC ACC GCC CCG GAG CCC GGC CCC CAG Asp Ile Val Ala Leu Ser Leu Pro Thr Ala Pro Glu Pro Gly Pro Gln 2815 2820 2825	28496
5	GCG GTG CGC GAG GTG CTG TCC CAG GCG CTC GAC GCC GCC CAG GCG TGG Ala Val Arg Glu Val Leu Ser Gln Ala Leu Asp Ala Ala Gln Ala Trp 2830 2835 2840 2845	28544
10	CTG GCC GCC GGC GCC GAG ACC GCC TCC GCC CGG CTG GTG TTC GTC ACC Leu Ala Ala Gly Ala Glu Thr Ala Ser Ala Arg Leu Val Phe Val Thr 2850 2855 2860	28592
15	GGC GGC GCG GTG GCC ACC ACG GCG GAC GAA ACC GTG CGC GAC ATC GCG Gly Gly Ala Val Ala Thr Thr Ala Asp Glu Thr Val Arg Asp Ile Ala 2865 2870 2875	28640
	GCG GCC GCC GTC TGG GGC CTG GTC CGC TCG GCG CAG TCC GAG GAA CCC Ala Ala Ala Val Trp Gly Leu Val Arg Ser Ala Gln Ser Glu Glu Pro 2880 2885 2890	28688
20	GAC CGC ATG GTC CTG CTC GAC CTG GAC GGC GAG CGG CCC ACC GCG CGG Asp Arg Met Val Leu Leu Asp Leu Asp Gly Glu Arg Pro Thr Ala Arg 2895 2900 2905	28736
25	ACG CTG GCG GCG GCG CTC GCG TCC GGC GAA CCG CAA CTC GCC GTG CGC Thr Leu Ala Ala Ala Leu Ala Ser Gly Glu Pro Gln Leu Ala Val Arg 2910 2915 2920 2925	28784
	GGC TCC ACG GTG GCC GCT CCC CGG CTG GCC CCG GCC GGG CCC GGC CCG Gly Ser Thr Val Ala Ala Pro Arg Leu Ala Pro Ala Gly Pro Gly Pro 2930 2935 2940	28832
30	GAG GAC CTC GTA CCG CCC GCC GGC ACC ACC GCC TGG CGG CTC ACC CCC Glu Asp Leu Val Pro Pro Ala Gly Thr Thr Ala Trp Arg Leu Thr Pro 2945 2950 2955	28880
35	GGC GGG GGG ACG CTG GAG GAA CTG TCG CTC GCG CCC GCC CCC GAC GCG Gly Gly Gly Thr Leu Glu Glu Leu Ser Leu Ala Pro Ala Pro Asp Ala 2960 2965 2970	28928
40	GAG GAA CCA CTG GCA CCG GGC CAG GTA CGC ATC GCC GTC CGC GCG GCG Glu Glu Pro Leu Ala Pro Gly Gln Val Arg Ile Ala Val Arg Ala Ala 2975 2980 2985	28976
	GGC GTG AAC TTC CGC GAC GCC CTG ATC GCC CTC GGC ATG TAC CCG GGC Gly Val Asn Phe Arg Asp Ala Leu Ile Ala Leu Gly Met Tyr Pro Gly 2990 2995 3000 3005	29024
45	AAG GGA ACC ATG GGC GCC GAG GGA GCC GGC GTC GTC GTC GAG ACC GCC Lys Gly Thr Met Gly Ala Glu Gly Ala Gly Val Val Val Glu Thr Ala 3010 3015 3020	29072
50	CCC GAT GTC ACC GGC CTC TCC GCC GGA GAC CGC GTG CTC GGC ATG TGG Pro Asp Val Thr Gly Leu Ser Ala Gly Asp Arg Val Leu Gly Met Trp 3025 3030 3035	29120
55	AAC GGC GGC TTC GGG CCC CTC GTG GTG GCC GAC CAC CGC ATG GTG GCC Asn Gly Gly Phe Gly Pro Leu Val Val Ala Asp His Arg Met Val Ala 3040 3045 3050	29168

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	CCG ATC CCC CAC GGC TGG TCG TAC GCC GAG GCG GCC TCC GTG CCC GCC	29216
	Pro Ile Pro His Gly Trp Ser Tyr Ala Glu Ala Ala Ser Val Pro Ala	
	3055 3060 3065	
5	GTG CTC CTC ACC TCC TAC TAC GCG CTG ACC CGG CTG GCC CGG GCC CGC	29264
	Val Leu Leu Thr Ser Tyr Tyr Ala Leu Thr Arg Leu Ala Arg Ala Arg	
	3070 3075 3080 3085	
10	ACC GGA CAG ACC GTC CTC GTC CAC GCC GCC GCC GGC GGT GTC GGC ATG	29312
	Thr Gly Gln Thr Val Leu Val His Ala Ala Ala Gly Gly Val Gly Met	
	3090 3095 3100	
	GCG ACC CTC CAA CTC GCC CGC CAC CTC GGC CTG GAG GTG TAC GCC ACC	29360
	Ala Thr Leu Gln Leu Ala Arg His Leu Gly Leu Glu Val Tyr Ala Thr	
	3105 3110 3115	
15	GCG AGC ACC GGC AAA TGG GAC GCC CTG CAG AAG CAC GGC ATC CCC GAC	29408
	Ala Ser Thr Gly Lys Trp Asp Ala Leu Gln Lys His Gly Ile Pro Asp	
	3120 3125 3130	
20	GAC CGC ATC GCC GAC TCC CGC ACC CTG GAC TTC GCC GAG CGC TTC CTG	29456
	Asp Arg Ile Ala Asp Ser Arg Thr Leu Asp Phe Ala Glu Arg Phe Leu	
	3135 3140 3145	
25	TCC CGG ACG GGC GGC CGG GGT GTC GAC ATC GTG CTG AAC TCC CTG GCC	29504
	Ser Arg Thr Gly Gly Arg Gly Val Asp Ile Val Leu Asn Ser Leu Ala	
	3150 3155 3160 3165	
	GGC GAG TTC GTC GAC GCC TCA CTG CGG CTG CTG CCG CGC GGC GGG CAC	29552
	Gly Glu Phe Val Asp Ala Ser Leu Arg Leu Leu Pro Arg Gly Gly His	
	3170 3175 3180	
30	TTC CTG GAA CTC GGC AAG GCC GAC GTC CGC GAC CCC CGG CGG ATC GCC	29600
	Phe Leu Glu Leu Gly Lys Ala Asp Val Arg Asp Pro Arg Arg Ile Ala	
	3185 3190 3195	
35	GCC GCC CAT CCG GGC ACC GAC TAC CGG GCG TTC GAC CTG GTG CAG GCC	29648
	Ala Ala His Pro Gly Thr Asp Tyr Arg Ala Phe Asp Leu Val Gln Ala	
	3200 3205 3210	
40	GGT CCC GAC ACC GTC GGC GAG ATG CTC GGC GAA CTG CTG GAA CTG TTC	29696
	Gly Pro Asp Thr Val Gly Glu Met Leu Gly Glu Leu Leu Glu Leu Phe	
	3215 3220 3225	
	GCG GCC GGA GCG CTG CGC CCG CTG CCG CTC ACC GCC TAC GGC ATA CGC	29744
	Ala Ala Gly Ala Leu Arg Pro Leu Pro Leu Thr Ala Tyr Gly Ile Arg	
	3230 3235 3240 3245	
45	GAC GCC CGC ACC GCC TTG CGC ACC CTC AGC CAG GCC CGG CAC ACC GGC	29792
	Asp Ala Arg Thr Ala Leu Arg Thr Leu Ser Gln Ala Arg His Thr Gly	
	3250 3255 3260	
50	AAG CTC GTG CTG ACG GTG CCT GCC GGA TTC GAC ACC CAC CGC ACG GTG	29840
	Lys Leu Val Leu Thr Val Pro Ala Gly Phe Asp Thr His Arg Thr Val	
	3265 3270 3275	
55	CTC CTC ACC GGC GGC ACG GGC ACG CTC GGC CAG ACA CTC GCC CGC CAT	29888
	Leu Leu Thr Gly Gly Thr Gly Thr Leu Gly Gln Thr Leu Ala Arg His	
	3280 3285 3290	

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	CTG GTC AAC CGC CAC GGC GTA CGG CAC CTG CTG CTC GCC GGC CGC ACC	29936
	Leu Val Asn Arg His Gly Val Arg His Leu Leu Leu Ala Gly Arg Thr	
	3295 3300 3305	
5	GGC GCG GCG GCC GAG GGC GTC GCG GAA CTG ATT GGT GAA CTG GGC GAG	29984
	Gly Ala Ala Ala Glu Gly Val Ala Glu Leu Ile Gly Glu Leu Gly Glu	
	3310 3315 3320 3325	
10	TTG GGC GCC GAG GTC CGG GTC GCG GCC TGC GAC GCG GCC GAC CGG CAG	30032
	Leu Gly Ala Glu Val Arg Val Ala Ala Cys Asp Ala Ala Asp Arg Gln	
	3330 3335 3340	
	CGG CTC ACC GAA CTC CTC GCC GGA ATC CCC GTC GAG CAC CCG CTC GGC	30080
	Arg Leu Thr Glu Leu Leu Ala Gly Ile Pro Val Glu His Pro Leu Gly	
	3345 3350 3355	
15	GCC GTC GTC CAC GCC GCG GGC ACC CTC GAC GAC GGC ACC ATC CCC TCA	30128
	Ala Val Val His Ala Ala Gly Thr Leu Asp Asp Gly Thr Ile Pro Ser	
	3360 3365 3370	
20	CTG ACC GGC GAG AAC ATC GAC AAC GTG CTG CGG CCC AAG GCC GAC GCC	30176
	Leu Thr Gly Glu Asn Ile Asp Asn Val Leu Arg Pro Lys Ala Asp Ala	
	3375 3380 3385	
25	GTG CTC AAC CTG CAC GAG CTG ACC CGC GAC GCC GAC CTC TCG GCG TTC	30224
	Val Leu Asn Leu His Glu Leu Thr Arg Asp Ala Asp Leu Ser Ala Phe	
	3390 3395 3400 3405	
	GTC CTC TAC TCG TCC TCC TCG GCG CTG CTC GGC AGC CCC GGC CAG GGC	30272
	Val Leu Tyr Ser Ser Ser Ser Ala Leu Leu Gly Ser Pro Gly Gln Gly	
	3410 3415 3420	
30	GCC TAC GCC GCG GCC AAC GCC TTC CTG GAC GGC TTC GCC CGA TAC CGC	30320
	Ala Tyr Ala Ala Ala Asn Ala Phe Leu Asp Gly Phe Ala Arg Tyr Arg	
	3425 3430 3435	
35	AAG GGC CTC GGG CTG CCG GCG CTC TCG CTG GCC TGG GGA CTG TGG GGC	30368
	Lys Gly Leu Gly Leu Pro Ala Leu Ser Leu Ala Trp Gly Leu Trp Gly	
	3440 3445 3450	
40	AGC AAC AGC CGC ATG GCG GGC CAC CTC GAC CAG TCG GGC ATG CAA CGG	30416
	Ser Asn Ser Arg Met Ala Gly His Leu Asp Gln Ser Gly Met Gln Arg	
	3455 3460 3465	
	CGC CTG AAC CGG AGC GGC ATC ATG GCG CTC ACC GAC GCC GAG GGC CTC	30464
	Arg Leu Asn Arg Ser Gly Ile Met Ala Leu Thr Asp Ala Glu Gly Leu	
	3470 3475 3480 3485	
45	GCC CTG TTC GAC GCC GCA CAG GAC GGC GGG GAC GCG CTG CTG GTG CCG	30512
	Ala Leu Phe Asp Ala Ala Gln Asp Gly Gly Asp Ala Leu Leu Val Pro	
	3490 3495 3500	
50	ATG CGG CTC AAC CGG ACG GCC CTT CGC GCC TCG GGA CGG ATC ACC CCG	30560
	Met Arg Leu Asn Arg Thr Ala Leu Arg Ala Ser Gly Arg Ile Thr Pro	
	3505 3510 3515	
55	TTC CTC AGC GGC TTG GCC GGC GGC GGG CCG GCG GCG GGG GAG AGG CGC	30608
	Phe Leu Ser Gly Leu Ala Gly Gly Gly Pro Ala Ala Gly Glu Arg Arg	
	3520 3525 3530	

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	CCC GAG GTG GCA GCC GTA TCC GGG ACA CTC GCG GAA CGG CTG ACC GGG Pro Glu Val Ala Ala Val Ser Gly Thr Leu Ala Glu Arg Leu Thr Gly 3535 3540 3545	30656
5	CTC ACG GCA CAG GAA GGG CAC GCC CTC GTC CTG GCC GAG ATC CGC GCC Leu Thr Ala Gln Glu Gly His Ala Leu Val Leu Ala Glu Ile Arg Ala 3550 3555 3560 3565	30704
10	CAC GCG GCG GCG GTG CTG GGC CAC GGC TCC GAC GAC TCG ATC CCC GAG His Ala Ala Ala Val Leu Gly His Gly Ser Asp Asp Ser Ile Pro Glu 3570 3575 3580	30752
15	GAC CGG GCC TTC AAG GAC CTC GGC TTC GAC TCG CTC ACC GCC GTG GAG Asp Arg Ala Phe Lys Asp Leu Gly Phe Asp Ser Leu Thr Ala Val Glu 3585 3590 3595	30800
20	ATG CGC AAC CGG CTG AGC GCG GCC ACC GGC CTC CGG CTG CCC GCC ACC Met Arg Asn Arg Leu Ser Ala Ala Thr Gly Leu Arg Leu Pro Ala Thr 3600 3605 3610	30848
25	CTC GTC TTC GAC CAC CCG ACC CCG GGC GAG CTG GCC GGC CAC CTG AGT Leu Val Phe Asp His Pro Thr Pro Gly Glu Leu Ala Gly His Leu Ser 3615 3620 3625	30896
30	GCT GAA CTG TCC GCC GAC GAT GCC CCG GGC AGC GCC TCC CCG CTT ACC Ala Glu Leu Ser Ala Asp Asp Ala Pro Gly Ser Ala Ser Pro Leu Thr 3630 3635 3640 3645	30944
35	GAA CTC GAC CGT TTC GAA GCC CTG TTC ACC GCT CTC GCA CCG GGG ACC Glu Leu Asp Arg Phe Glu Ala Leu Phe Thr Ala Leu Ala Pro Gly Thr 3650 3655 3660	30992
40	ACC AAG GAC ACC CCG GGC GGG GCC GGG GCA CTG ATG ATC GAC GAG GCC Thr Lys Asp Thr Pro Gly Gly Ala Gly Ala Leu Met Ile Asp Glu Ala 3665 3670 3675	31040
45	GAG CGC CAA GAG ATC GCC GGG CGG CTC GCG GCG CTG GCC GGT CTG TGG Glu Arg Gln Glu Ile Ala Gly Arg Leu Ala Ala Leu Ala Gly Leu Trp 3680 3685 3690	31088
50	AAC CGG CTG CAC GGC ACC ACG ACG GCT CCT GAG GAC GGC GAC ACC GTC Asn Arg Leu His Gly Thr Thr Thr Ala Pro Glu Asp Gly Asp Thr Val 3695 3700 3705	31136
55	GCG GAC GCC CTG GAA GCC GCG GAC GAC CAC GAG ATC TTC GCA TTC CTC Ala Asp Ala Leu Glu Ala Ala Asp Asp His Glu Ile Phe Ala Phe Leu 3710 3715 3720 3725	31184
	GAC GAG CGG TTC TGA GCGCGCCCCA GCGACAGCAC AGGTGAAAAC AC ATG GCC Asp Glu Arg Phe * Met Ala 3730 1	31237
	AAC GCG AAC GAG CAG CAA CTC CGT GCC TAT CTG AAG CGA GCG ACG ACC Asn Ala Asn Glu Gln Gln Leu Arg Ala Tyr Leu Lys Arg Ala Thr Thr 5 10 15	31285
	GAA CTC CAC CGT ACC TCC GAA CAA CTG AGG GAG GAG CGG GCA CGG GCC Glu Leu His Arg Thr Ser Glu Gln Leu Arg Glu Glu Arg Ala Arg Ala 20 25 30	31333

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	CAC GAG CCG ATC GCC GTC GTC GGC ATG GCC TGC CGC TAC CCC GGA GGC	31381
	His Glu Pro Ile Ala Val Val Gly Met Ala Cys Arg Tyr Pro Gly Gly	
	35 40 45 50	
5	GCG AAC ACC CCC GAA CAG TTC TGG GAA CTG CTC GAC ACC GGC ACC GAC	31429
	Ala Asn Thr Pro Glu Gln Phe Trp Glu Leu Leu Asp Thr Gly Thr Asp	
	55 60 65	
10	GCC GCC GCG CCG ATG CCC TCC GAC CGG GGA TGG GAC ACC CAC GGG CTG	31477
	Ala Ala Ala Pro Met Pro Ser Asp Arg Gly Trp Asp Thr His Gly Leu	
	70 75 80	
	TAC GAC CCC GAC CCG GCG GCA GCG GGG CGC ACC TAC TGC CGG GAG GGC	31525
	Tyr Asp Pro Asp Pro Ala Ala Ala Gly Arg Thr Tyr Cys Arg Glu Gly	
	85 90 95	
15	GGC TTC CTC CAC GAC GCG GGC GAC TTC GAC GCG GAC TTC TTC GGG ATT	31573
	Gly Phe Leu His Asp Ala Gly Asp Phe Asp Ala Asp Phe Phe Gly Ile	
	100 105 110	
20	TCG CCG CGT GAG GCG GTG GCG ATG GAT CCG CAG CAG CGG CTG TTG CTG	31621
	Ser Pro Arg Glu Ala Val Ala Met Asp Pro Gln Gln Arg Leu Leu Leu	
	115 120 125 130	
25	GAG ACC TCC TGG GAG GCG ATC GAA GCG GCC GGT ATC GAC CCG CGA GGA	31669
	Glu Thr Ser Trp Glu Ala Ile Glu Ala Ala Gly Ile Asp Pro Arg Gly	
	135 140 145	
	CTC CGC GGC AGC CGC ACC GGG GTG TAC GTG GGC GCC TGG GAC AGC GGC	31717
	Leu Arg Gly Ser Arg Thr Gly Val Tyr Val Gly Ala Trp Asp Ser Gly	
	150 155 160	
30	TAC ACC GGC CAG GCG CAC GCG CCC TCG GCC GAG TTG GAG GCC GAC CTG	31765
	Tyr Thr Gly Gln Ala His Ala Pro Ser Ala Glu Leu Glu Ala Asp Leu	
	165 170 175	
35	CTG ACC GGC GGC GTC GTC AGC TTC ACC TCC GGC CGT ATC GCC TAC ACG	31813
	Leu Thr Gly Gly Val Val Ser Phe Thr Ser Gly Arg Ile Ala Tyr Thr	
	180 185 190	
40	CTG GGG CTG GAG GGT CCG GCC TTG ACC GTG GAC ACC GCG TGT TCG TCG	31861
	Leu Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser	
	195 200 205 210	
	TCG CTG GTC GCC CTG CAC AAC GCG GCG CAG GCG CTG CGG CGC GGC GAA	31909
	Ser Leu Val Ala Leu His Asn Ala Ala Gln Ala Leu Arg Arg Gly Glu	
	215 220 225	
45	TGC GAC CTG GCG TTG GCC GGT GGT GTG ACG GTG ATG GCG ACC CCG GCG	31957
	Cys Asp Leu Ala Leu Ala Gly Gly Val Thr Val Met Ala Thr Pro Ala	
	230 235 240	
50	GTG TTC GTC CAG TTC GCC CCG CAG CGA GGG CTG GCG CCG GAC GGC CGC	32005
	Val Phe Val Gln Phe Ala Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg	
	245 250 255	
55	TGC AAG GCG TTC GCC GAC GCC GCC GAC GGC TTC GGC CCC GCC GAG GGT	32053
	Cys Lys Ala Phe Ala Asp Ala Ala Asp Gly Phe Gly Pro Ala Glu Gly	
	260 265 270	

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	GTG GGG ATG GTG CTG GTG GAG CGG TTG TCG GAT GCC CGG CGG TTG GGG	32101
	Val Gly Met Val Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Leu Gly	
	275 280 285 290	
5	CAT CCG GTG TTG GCG GTG GTG TGT GGG TCG GCG GTG AAT CAG GAC GGT	32149
	His Pro Val Leu Ala Val Val Cys Gly Ser Ala Val Asn Gln Asp Gly	
	295 300 305	
10	GCG TCG AAT GGT TTG ACG GCG CCG AGT GGT CCG TCG CAG GAG CGG GTG	32197
	Ala Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ser Gln Glu Arg Val	
	310 315 320	
15	ATT CGT CAG GCG TTG GGG AAT GCG CGG TTG ACG GTG GCG GAT GTG GAT	32245
	Ile Arg Gln Ala Leu Gly Asn Ala Arg Leu Thr Val Ala Asp Val Asp	
	325 330 335	
20	GTG GTG GAG GCG CAT GGG ACG GGG ACG CGG CTG GGT GAT CCG ATC GAG	32293
	Val Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu	
	340 345 350	
25	GCG CAG GCG TTG CTG GGG ACG TAT GGG CGG GAT CGT GAT GGT GGG CGT	32341
	Ala Gln Ala Leu Leu Gly Thr Tyr Gly Arg Asp Arg Asp Gly Gly Arg	
	355 360 365 370	
30	CCG GTG TGG TTG GGG TCG TTG AAG TCG AAT ATT GGT CAT GCT CAG GCG	32389
	Pro Val Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala	
	375 380 385	
35	GCT GCG GGG GTG GCT GGT GTG ATC AAG ATG GTG TTG GCG ATG CGG TAT	32437
	Ala Ala Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Met Arg Tyr	
	390 395 400	
40	GGG TGG TTG CCG CGG ACG TTG CAT GTG GAT GAG CCG AGC CGG CAT GTG	32485
	Gly Trp Leu Pro Arg Thr Leu His Val Asp Glu Pro Ser Arg His Val	
	405 410 415	
45	GAC TGG TCG GCT GGT GGT GTG CGG TTG CTG ACC GAG GCG CGG GAG TGG	32533
	Asp Trp Ser Ala Gly Gly Val Arg Leu Leu Thr Glu Ala Arg Glu Trp	
	420 425 430	
50	CCG GGG GTG GAC CGG CCG CGT CGG GCG GCG GTC TCC GCC TTT GGT GTC	32581
	Pro Gly Val Asp Arg Pro Arg Arg Ala Ala Val Ser Ala Phe Gly Val	
	435 440 445 450	
55	AGT GGT ACC AAC GCC CAT CTG ATC CTC GAA GCC CCC GAC ACC GCC GAG	32629
	Ser Gly Thr Asn Ala His Leu Ile Leu Glu Ala Pro Asp Thr Ala Glu	
	455 460 465	
60	GCG GAG AGC GCC ACG ACC CCG GTC CGC TCT GAG GTG TCG GAG TCT GCT	32677
	Ala Glu Ser Ala Thr Thr Pro Val Arg Ser Glu Val Ser Glu Ser Ala	
	470 475 480	
65	GCG GTC CTC GAT GCC CGC AGT GGT GTG GTG CCG GTG GTG GTT TCG GGG	32725
	Ala Val Leu Asp Ala Arg Ser Gly Val Val Pro Val Val Val Ser Gly	
	485 490 495	
70	CGT TCG CGG GTG GTG GTG CGG GAG GCT GCG GGC CGG TTG GCG GAG GTG	32773
	Arg Ser Arg Val Val Val Arg Glu Ala Ala Gly Arg Leu Ala Glu Val	
	500 505 510	

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	GTG GAG GCC GGT GGT GTG GGG CTG GCG GAT GTG GCG GTG ACG ATG GCG	32821
	Val Glu Ala Gly Gly Val Gly Leu Ala Asp Val Ala Val Thr Met Ala	
	515 520 525 530	
5	GGC CGG TCG CGG TTT GGG TAT CGG GCG GTT GTG CTG GCT CGG GGT GAG	32869
	Gly Arg Ser Arg Phe Gly Tyr Arg Ala Val Val Leu Ala Arg Gly Glu	
	535 540 545	
10	GCT GAG CTT GCC GGG CGT TTG CGG GCG TTG GCG GGG GGT GAT CCG GAC	32917
	Ala Glu Leu Ala Gly Arg Leu Arg Ala Leu Ala Gly Gly Asp Pro Asp	
	550 555 560	
15	GCG GGT GTG GTC ACG GGT GCG GTG GTG GAC CCG GAG ACG GGG TCC GGT	32965
	Ala Gly Val Val Thr Gly Ala Val Val Asp Pro Glu Thr Gly Ser Gly	
	565 570 575	
20	GGT GGG GCG GTG GTG TTG GTT TTC CCT GGT CAG GGG ACG CAG TGG GTG	33013
	Gly Gly Gly Val Val Leu Val Phe Pro Gly Gln Gly Thr Gln Trp Val	
	580 585 590	
25	GGG ATG GGT GCG GGG CTG CTG GGG TCT TCG GAG GTG TTT GCG GCG TCG	33061
	Gly Met Gly Ala Gly Leu Leu Gly Ser Ser Glu Val Phe Ala Ala Ser	
	595 600 605 610	
30	ATG CGG GAG TGT GCG CGG GCG CTG AGT GTT CAT GTG GGG TGG GAT TTG	33109
	Met Arg Glu Cys Ala Arg Ala Leu Ser Val His Val Gly Trp Asp Leu	
	615 620 625	
35	CTG GAG GTG GTG TCG GGC GGG GCC GGG TTG GAG CCG GTG GAT GTG GTG	33157
	Leu Glu Val Val Ser Gly Gly Ala Gly Leu Glu Arg Val Asp Val Val	
	630 635 640	
40	CAG CCG GTG ACG TGG GCG GTG ATG GTG TCG CTG GCC CCG TAC TGG CAG	33205
	Gln Pro Val Thr Trp Ala Val Met Val Ser Leu Ala Arg Tyr Trp Gln	
	645 650 655	
45	GCG ATG GGT GTG GAC GTG GCT GCG GTG GTG GGT CAT TCC CAG GGG GAG	33253
	Ala Met Gly Val Asp Val Ala Ala Val Val Gly His Ser Gln Gly Glu	
	660 665 670	
50	ATC GCT GCT GCC ACG GTG GCG GGG GCG TTG TCG CTG GAG GAT GCG GCG	33301
	Ile Ala Ala Ala Thr Val Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala	
	675 680 685 690	
55	GCT GTG GTC GCT CTG CGG GCG GGG TTG ATT GGC CCG TAT CTG GCG GGT	33349
	Ala Val Val Ala Leu Arg Ala Gly Leu Ile Gly Arg Tyr Leu Ala Gly	
	695 700 705	
60	CGT GGT GCG ATG GCG GCT GTT CCG CTG CCT GCC GGC GAG GTC GAG GCC	33397
	Arg Gly Ala Met Ala Ala Val Pro Leu Pro Ala Gly Glu Val Glu Ala	
	710 715 720	
65	GGG CTG GCG AAG TGG CCG GGT GTG GAG GTC GCG GCG GTC AAC GGT CCG	33445
	Gly Leu Ala Lys Trp Pro Gly Val Glu Val Ala Ala Val Asn Gly Pro	
	725 730 735	
70	GCG TCT ACG GTG GTT TCC GGG GAT CGG CGG GCG GTG GCC GGT TAT GTG	33493
	Ala Ser Thr Val Val Ser Gly Asp Arg Arg Ala Val Ala Gly Tyr Val	
	740 745 750	

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	GCC GTC TGT CAG GCG GAG GGT GTG CAG GCT CGG TTG ATA CCG GTG GAC	33541
	Ala Val Cys Gln Ala Glu Gly Val Gln Ala Arg Leu Ile Pro Val Asp	
	755 760 765 770	
5	TAC GCC TCT CAC TCC CGC CAT GTG GAG GAC CTG AAG GGC GAG TTG GAG	33589
	Tyr Ala Ser His Ser Arg His Val Glu Asp Leu Lys Gly Glu Leu Glu	
	775 780 785	
10	CGG GTG CTG TCC GGT ATC CGC CCC CGC AGT CCG CGG GTG CCG GTG TGT	33637
	Arg Val Leu Ser Gly Ile Arg Pro Arg Ser Pro Arg Val Pro Val Cys	
	790 795 800	
15	TCC ACC GTC GCC GGA GAG CAG CCG GGC GAG CCG GTT TTC GAT GCG GGG	33685
	Ser Thr Val Ala Gly Glu Gln Pro Gly Glu Pro Val Phe Asp Ala Gly	
	805 810 815	
20	TAT TGG TTC CGT AAT CTG CGG AAC CGG GTT GAG TTC TCC GCG GTG GTC	33733
	Tyr Trp Phe Arg Asn Leu Arg Asn Arg Val Glu Phe Ser Ala Val Val	
	820 825 830	
25	GGT GGT TTG TTG GAG GAG GGC CAC CGT CGG TTC ATC GAG GTC AGT GCC	33781
	Gly Gly Leu Leu Glu Glu Gly His Arg Arg Phe Ile Glu Val Ser Ala	
	835 840 845 850	
30	CAC CCG GTA CTC GTC CAT GCC ATT GAG CAG ACG GCC GAG GCC GCG GAC	33829
	His Pro Val Leu Val His Ala Ile Glu Gln Thr Ala Glu Ala Ala Asp	
	855 860 865	
35	CGG AGT GTC CAT GCC ACC GGG ACC CTG CGC CGC CAG GAC GAC AGC CCG	33877
	Arg Ser Val His Ala Thr Gly Thr Leu Arg Arg Gln Asp Asp Ser Pro	
	870 875 880	
40	CAC CGC CTG CTG ACC TCC ACC GCC GAG GCC TGG GCC CAC GGC GCC ACC	33925
	His Arg Leu Leu Thr Ser Thr Ala Glu Ala Trp Ala His Gly Ala Thr	
	885 890 895	
45	CTC ACC TGG GAC CCC GCC CTG CCC CCA GGC CAC CTC ACC ACC CTC CCC	33973
	Leu Thr Trp Asp Pro Ala Leu Pro Pro Gly His Leu Thr Thr Leu Pro	
	900 905 910	
50	ACC TAC CCC TTC AAC CAC CAC CAC TAC TGG CTC GAC ACC ACC CCC ACC	34021
	Thr Tyr Pro Phe Asn His His His Tyr Trp Leu Asp Thr Thr Pro Thr	
	915 920 925 930	
55	ACC CCC GCG ACG ACC ACC CAG AGC CCC ACC GAT GCC TGG CGC TAC CGC	34069
	Thr Pro Ala Thr Thr Gln Ser Pro Thr Asp Ala Trp Arg Tyr Arg	
	935 940 945	
60	GTC ACC TGG AAA GCC CTG ACC GAA GAA TCC ACT CCG GCC TCG TCC CCC	34117
	Val Thr Trp Lys Ala Leu Thr Glu Glu Ser Thr Pro Ala Ser Ser Pro	
	950 955 960	
65	TCC GGT CAC TGG CTC CTC GTC ACA CCC CCG ACC CCC GAA GGC CGC ACG	34165
	Ser Gly His Trp Leu Leu Val Thr Pro Pro Thr Pro Glu Gly Arg Thr	
	965 970 975	
70	CTC GGG GAC CGG GCC GCC GGC GCC CTC GCA CGT CAG GGG GCC ACG GTG	34213
	Leu Gly Asp Arg Ala Ala Gly Ala Leu Ala Arg Gln Gly Ala Thr Val	
	980 985 990	

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	GAA CGG CTG GTG GTC GAT CCG GTC GCC GTC GGA CGC GAC GGG CTC GCG	34261
	Glu Arg Leu Val Val Asp Pro Val Ala Val Gly Arg Asp Gly Leu Ala	
	995 1000 1005 1010	
5	GCG CGC CTG GGC GAA CGG TGG GAC GGT GTG CTG TCC CTG CTC GGC GCC	34309
	Ala Arg Leu Gly Glu Arg Trp Asp Gly Val Leu Ser Leu Leu Gly Ala	
	1015 1020 1025	
10	GAC GAG CGT CCG CTC CCA CGG CAT CCC GCC CTC AAC CGC GCC GTC ATG	34357
	Asp Glu Arg Pro Leu Pro Arg His Pro Ala Leu Asn Arg Ala Val Met	
	1030 1035 1040	
15	GGC ACC ACG CTG CTC GCC CAG GCC GCT CTG GAC GCA GGA TGC GAG GCG	34405
	Gly Thr Thr Leu Leu Ala Gln Ala Ala Leu Asp Ala Gly Cys Glu Ala	
	1045 1050 1055	
20	CGG ATA TGG GCC GTG ACG CGG GAG GCC GTC GCC GTC TCC CCG AGC GAG	34453
	Arg Ile Trp Ala Val Thr Arg Glu Ala Val Ala Val Ser Pro Ser Glu	
	1060 1065 1070	
25	GTG CCG CGG GAC GCC GGC GCG CAG CTC TGG GGG CTC GGG CGG GGC ATC	34501
	Val Pro Arg Asp Ala Gly Ala Gln Leu Trp Gly Leu Gly Arg Gly Ile	
	1075 1080 1085 1090	
30	GCG CTG GAA CAC CCC TCC CTC TGG GGC GGA TTG ATC GAT CTG CCC GCC	34549
	Ala Leu Glu His Pro Ser Leu Trp Gly Gly Leu Ile Asp Leu Pro Ala	
	1095 1100 1105	
35	GTG CCG GAC GAA CGC GCG TGG GCC AGG GCC GTC CGG CGG CTC GTC CCG	34597
	Val Pro Asp Glu Arg Ala Trp Ala Arg Ala Val Arg Arg Leu Val Pro	
	1110 1115 1120	
40	CAC GGT GAG GAC CAG ATC GCC GCG CGC GCC TCG GGT GCC TAT GGG CGC	34645
	His Gly Glu Asp Gln Ile Ala Ala Arg Ala Ser Gly Ala Tyr Gly Arg	
	1125 1130 1135	
45	AGG CTC CTG CCG GCT CCG CCG GCC GCG TCG CGC CGC ACC TGC ACA CCG	34693
	Arg Leu Leu Pro Ala Pro Pro Ala Ala Ser Arg Arg Thr Cys Thr Pro	
	1140 1145 1150	
50	TCC GGC ACG GTG CTG GTC ACC GGC GGT ACG GGA GCG CTC GGC GGT CAT	34741
	Ser Gly Thr Val Leu Val Thr Gly Gly Thr Gly Ala Leu Gly Gly His	
	1155 1160 1165 1170	
55	CTG GCC CGC CGT CTC GCA CGC GGC GGG ACC GGG CAT CTG GTG CTC ACC	34789
	Leu Ala Arg Arg Leu Ala Arg Gly Gly Thr Gly His Leu Val Leu Thr	
	1175 1180 1185	
60	AGC CGT CGC GGC CCG GAC GCG CCG GGC GCC GGT GAA CTC GCC GGT GAA	34837
	Ser Arg Arg Gly Pro Asp Ala Pro Gly Ala Gly Glu Leu Ala Gly Glu	
	1190 1195 1200	
65	CTC GCC TCC CTG GGC GCG AAG GTC ACG GTC GCC GCG TGC GAC ATG GCC	34885
	Leu Ala Ser Leu Gly Ala Lys Val Thr Val Ala Ala Cys Asp Met Ala	
	1205 1210 1215	
70	GAC CGT GAA GCC GTG CGG GCG CTG CTC GAC GAG CAC CGG CCG ACC GCG	34933
	Asp Arg Glu Ala Val Arg Ala Leu Leu Asp Glu His Arg Pro Thr Ala	
	1220 1225 1230	

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	GTG TTC CAC ACG GCG GGC ACG CCC CAC TCG GCG GAG TTC ACG GCG CTG	34981
	Val Phe His Thr Ala Gly Thr Pro His Ser Ala Glu Phe Thr Ala Leu	
	1235 1240 1245 1250	
5	GAC GAG ACG ACG ACG GCC GGG GTG TAC GGC GGG AAG GTC CTG GGT GCC	35029
	Asp Glu Thr Thr Thr Ala Gly Val Tyr Gly Gly Lys Val Leu Gly Ala	
	1255 1260 1265	
10	CGG CAT CTG GAC GAA CTG ACC CGG GAA CTC GGC ATC GGG CTG GAC GCG	35077
	Arg His Leu Asp Glu Leu Thr Arg Glu Leu Gly Ile Gly Leu Asp Ala	
	1270 1275 1280	
15	TTC GTC CTC TTC TCC TCC GGC GCC GCG GTC TGG GGC AGC GGC GGC CAG	35125
	Phe Val Leu Phe Ser Ser Gly Ala Ala Val Trp Gly Ser Gly Gly Gln	
	1285 1290 1295	
	ACC GCT TAC GGG GCC GCG AAC GCC GCG CTG GAC GCC CTC GCC GAG CGG	35173
	Thr Ala Tyr Gly Ala Ala Asn Ala Ala Leu Asp Ala Leu Ala Glu Arg	
	1300 1305 1310	
20	CGC CGT GCC GCC GGG CTG CCC GCG ACC TCC GTC GCC TGG GGC CTG TGG	35221
	Arg Arg Ala Ala Gly Leu Pro Ala Thr Ser Val Ala Trp Gly Leu Trp	
	1315 1320 1325 1330	
25	GGC GGC GGA GGC ATG GGG GAG GGG GAC GGT GAG GAG TTC CTC AGC CGG	35269
	Gly Gly Gly Gly Met Gly Glu Gly Asp Gly Glu Glu Phe Leu Ser Arg	
	1335 1340 1345	
30	CGC GGC CTC GGC GTG ATG CCG CCG GAG GAC GCG CTG GAA GCC CTG GAC	35317
	Arg Gly Leu Gly Val Met Pro Pro Glu Asp Ala Leu Glu Ala Leu Asp	
	1350 1355 1360	
35	CGG GCC CTG GAC CGG GAG GAC ACC ACC GTC GTG GTG GCG GAT GTC GAC	35365
	Arg Ala Leu Asp Arg Glu Asp Thr Thr Val Val Val Ala Asp Val Asp	
	1365 1370 1375	
40	TGG GAG CGG TTC GCC CCG GCC TTC ACC GCG TTC CGG CCC AGT GCG CTG	35413
	Trp Glu Arg Phe Ala Pro Ala Phe Thr Ala Phe Arg Pro Ser Ala Leu	
	1380 1385 1390	
45	ATC TCC CGG CTG GTC TCG GAC GGC GGG GAG GCG GGG GGG CAG GAC GCC	35461
	Ile Ser Arg Leu Val Ser Asp Gly Gly Glu Ala Gly Gly Gln Asp Ala	
	1395 1400 1405 1410	
50	CCG GAC GGC ACG CTG TTC GCC GCC GGG TTC GCG GCC GCC GGG CCA CTG	35509
	Pro Asp Gly Thr Leu Phe Ala Ala Gly Phe Ala Ala Ala Gly Pro Leu	
	1415 1420 1425	
55	GAG CGG CAG GAG ATG CTG CTC GGC CTG GTG CGC CGG CAT GTG GCC GCC	35557
	Glu Arg Gln Glu Met Leu Leu Gly Leu Val Arg Arg His Val Ala Ala	
	1430 1435 1440	
50	GTA CTC GGC CAC CCG GGG ACC GCG GAC ATC GGT CCC GAC CGT GCT TTC	35605
	Val Leu Gly His Pro Gly Thr Ala Asp Ile Gly Pro Asp Arg Ala Phe	
	1445 1450 1455	
55	AAG GAG CTG GGG TTC AGT TCG GTC ACC GCC GTC GAG CTG GCC GGG CGG	35653
	Lys Glu Leu Gly Phe Ser Ser Val Thr Ala Val Glu Leu Ala Gly Arg	
	1460 1465 1470	

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	CTG GGC CGG GAG TGC GGA CGG AAG CTG CCG CCG ACG CTG GTC TTC GAC	35701
	Leu Gly Arg Glu Cys Gly Arg Lys Leu Pro Pro Thr Leu Val Phe Asp	
	1475 1480 1485 1490	
5	CAT CCG ACT GCC GCG GCG GCC GTC GAA CAC CTG GCG GAG CTG CTG ACA	35749
	His Pro Thr Ala Ala Ala Val Glu His Leu Ala Glu Leu Leu Thr	
	1495 1500 1505	
10	CCG CCC GCC GGT CCC GCC GCC GGT CCC CGG GAG GAG GAG GCG CGG GCC	35797
	Pro Pro Ala Gly Pro Ala Ala Gly Pro Arg Glu Glu Glu Ala Arg Ala	
	1510 1515 1520	
	GCC CTG GCG CGC GTG CCG CTC GAA CGG CTG AGG GAA GCC GGC CTG CTG	35845
	Ala Leu Ala Arg Val Pro Leu Glu Arg Leu Arg Glu Ala Gly Leu Leu	
	1525 1530 1535	
15	GAC GCA CTG CTG CCG CTC GCC GCG GAC GAA TCC GGG GCG ACA ACC CCC	35893
	Asp Ala Leu Leu Arg Leu Ala Ala Asp Glu Ser Gly Ala Thr Thr Pro	
	1540 1545 1550	
20	CGT ACG TCT GCC GCG TCC GGC GCA CCC CGC GGC CGG GAG GAG CCG GAC	35941
	Arg Thr Ser Ala Ala Ser Gly Ala Pro Arg Gly Arg Glu Glu Pro Asp	
	1555 1560 1565 1570	
25	GGC CGC GGC GAG CCG GAC GGC TCG GGA CAC CGC GAA AGC CCG GAC GCG	35989
	Gly Arg Gly Glu Pro Asp Gly Ser Gly His Arg Glu Ser Pro Asp Ala	
	1575 1580 1585	
	GCC GGC GGC TCG GAC GCC CTG GAC GAT CTC GAC GGG GAC GCC CTG GTG	36037
	Ala Gly Gly Ser Asp Ala Leu Asp Asp Leu Asp Gly Asp Ala Leu Val	
	1590 1595 1600	
30	CGG CTC GCC CTC GGG GAA CCG GGC GAG TGA CCGGCCGGCG GAGCACACCC	36087
	Arg Leu Ala Leu Gly Glu Pro Gly Glu *	
	1605 1610	
35	GGCCGTCTCC GGCCCGGCCG CGGCCGGGCC GGAAGCCATC CGCCGCCAC CCGGTACCGA	36147
	CCCCTCAAGC CTTTCAAGCC CTTCGACCCG TCCGATCAGT CAGTCCGGCG GTCCTCCACG	36207
	ACCGGTCCGG AATCGCCCC ACACGAGTCA GGAAGCACAC C ATG GCC ATG TCC	36260
40	Met Ala Met Ser	
	1	
	GCC GAG AGG CTG ACG GAG GCG CTG CCG ACC TCG CTC AAG GAG GCC GAG	36308
	Ala Glu Arg Leu Thr Glu Ala Leu Arg Thr Ser Leu Lys Glu Ala Glu	
	5 10 15 20	
45	CGG CTC CGG CGG CAG AAC CGC GAA CTG AGG GCC GCG CGG GAC GCG GCG	36356
	Arg Leu Arg Arg Gln Asn Arg Glu Leu Arg Ala Ala Arg Asp Ala Ala	
	25 30 35	
50	CGG GAG CCG ATC GCC GTC GTC GGC ATG GCC TGC CGC TAC CCG GGC GGT	36404
	Arg Glu Pro Ile Ala Val Val Gly Met Ala Cys Arg Tyr Pro Gly Gly	
	40 45 50	
55	GTC ACC GGC CCC GAG GAG CTG TGG GAG CTG GTG GCC GGA GGC CGG GAC	36452
	Val Thr Gly Pro Glu Glu Leu Trp Glu Leu Val Ala Gly Gly Arg Asp	
	55 60 65	

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	GCG ATC GGG CCG TTC CCC GTG GAC CGG GGC TGG GAC GTG GCG TCG GTG	36500
	Ala Ile Gly Pro Phe Pro Val Asp Arg Gly Trp Asp Val Ala Ser Val	
	70 75 80	
5	TAC GAC CCG GAT CCC GAG TCG AAG GGC ACC ACG TAC TGC CCG GAG GGC	36548
	Tyr Asp Pro Asp Pro Glu Ser Lys Gly Thr Thr Tyr Cys Arg Glu Gly	
	85 90 95 100	
10	GGG TTC CTG GAA GGC GCC GGT GAC TTC GAC GCC GCC TTC TTC GGC ATC	36596
	Gly Phe Leu Glu Gly Ala Gly Asp Phe Asp Ala Ala Phe Phe Gly Ile	
	105 110 115	
15	TCG CCG CGC GAG GCC CTG GTG ATG GAC CCG CAG CAG CGG CTG CTG CTG	36644
	Ser Pro Arg Glu Ala Leu Val Met Asp Pro Gln Gln Arg Leu Leu Leu	
	120 125 130	
20	GAG GTG TCC TGG GAG GCG CTG GAA CGC GCG GGC ATC GAC CCG TCC TCG	36692
	Glu Val Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile Asp Pro Ser Ser	
	135 140 145	
25	CTG CGC GGC AGC CGC GGT GGT GTC TAC GTG GGC GCC GCG CAC GGC TCG	36740
	Leu Arg Gly Ser Arg Gly Gly Val Tyr Val Gly Ala Ala His Gly Ser	
	150 155 160	
30	TAC GCC TCC GAT CCC CGG CTG GTG CCC GAG GGC TCG GAG GGC TAT CTG	36788
	Tyr Ala Ser Asp Pro Arg Leu Val Pro Glu Gly Ser Glu Gly Tyr Leu	
	165 170 175 180	
35	CTG ACC GGC AGC GCC GAC GCG GTG ATG TCC GGC CGC ATC TCC TAC GCG	46836
	Leu Thr Gly Ser Ala Asp Ala Val Met Ser Gly Arg Ile Ser Tyr Ala	
	185 190 195	
40	CTC GGT CTC GAA GGA CCG TCC ATG ACG GTG GAG ACG GCC TGC TCC TCC	36884
	Leu Gly Leu Glu Gly Pro Ser Met Thr Val Glu Thr Ala Cys Ser Ser	
	200 205 210	
45	TCG CTG GTG GCG CTG CAT CTG GCG GTA CGG GCG CTG CGG CAC GGC GAG	36932
	Ser Leu Val Ala Leu His Leu Ala Val Arg Ala Leu Arg His Gly Glu	
	215 220 225	
50	TGC GGG CTC GCG CTG GCG GGC GGG GTG GCG GTG ATG GCC GAT CCG GCG	36980
	Cys Gly Leu Ala Leu Ala Gly Gly Val Ala Val Met Ala Asp Pro Ala	
	230 235 240	
55	GCG TTC GTG GAG TTC TCC CGG CAG AAG GGG CTG GCC GCC GAC GGC CGC	37028
	Ala Phe Val Glu Phe Ser Arg Gln Lys Gly Leu Ala Ala Asp Gly Arg	
	245 250 255 260	
60	TGC AAG GCG TTC TCG GCC GCC GCC GAC GGC ACC GGC TGG GCC GAG GGC	37076
	Cys Lys Ala Phe Ser Ala Ala Ala Asp Gly Thr Gly Trp Ala Glu Gly	
	265 270 275	
65	GTC GGC GTG CTC GTC CTG GAG CGG CTG TCG GAC GCG CGC CGC GCG GGC	37124
	Val Gly Val Leu Val Leu Glu Arg Leu Ser Asp Ala Arg Arg Ala Gly	
	280 285 290	
70	CAC ACG GTC CTC GGC CTG GTC ACC GGC ACC GCG GTC AAC CAG GAC GGT	37172
	His Thr Val Leu Gly Leu Val Thr Gly Thr Ala Val Asn Gln Asp Gly	
	295 300 305	

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	GCC TCC AAC GGG CTG ACC GCG CCC AAC GGC CCA GCC CAG CAA CGC GTC Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala Gln Gln Arg Val 310 315 320	37220
5	ATC GCC GAG GCG CTC GCC GAC GCC GGG CTG TCC CCG GAG GAC GTG GAC Ile Ala Glu Ala Leu Ala Asp Ala Gly Leu Ser Pro Glu Asp Val Asp 325 330 335 340	37268
10	GCG GTC GAG GCG CAC GGC ACC GGC ACC CGG CTC GGC GAC CCC ATC GAG Ala Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu 345 350 355	37316
15	GCC GGG GCG CTG CTC GCC GCC TCC GGA CGG AAC CGT TCC GGC GAC CAC Ala Gly Ala Leu Leu Ala Ala Ser Gly Arg Asn Arg Ser Gly Asp His 360 365 370	37364
	CCG CTG TGG CTC GGC TCG CTG AAG TCC AAC ATC GGG CAT GCC CAG GCC Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala 375 380 385	37412
20	GCC GCC GGT GTC GGC GGC GTC ATC AAG ATG CTC CAG GCG CTG CGG CAC Ala Ala Gly Val Gly Gly Val Ile Lys Met Leu Gln Ala Leu Arg His 390 395 400	37460
25	GGC TTG CTG CCC CGC ACC CTC CAC GCC GAC GAG CCG ACC CCG CAT GCC Gly Leu Leu Pro Arg Thr Leu His Ala Asp Glu Pro Thr Pro His Ala 405 410 415 420	37508
	GAC TGG AGC TCC GGC CGG GTA CGG CTG CTC ACC TCC GAG GTG CCG TGG Asp Trp Ser Ser Gly Arg Val Arg Leu Leu Thr Ser Glu Val Pro Trp 425 430 435	37556
30	CAG CGG ACC GGC CGG CCC CGG CGG ACC GGG GTG TCC GCC TTC GGC GTC Gln Arg Thr Gly Arg Pro Arg Arg Thr Gly Val Ser Ala Phe Gly Val 440 445 450	37604
35	GGC GGC ACC AAT GCC CAT GTC GTC CTC GAA GAG GCA CCC GCC CCG CCC Gly Gly Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala Pro Pro 455 460 465	37652
40	GCG CCG GAA CCG GCC GGG GAG GCC CCC GGC GGC TCC CGC GCC GCA GAA Ala Pro Glu Pro Ala Gly Glu Ala Pro Gly Gly Ser Arg Ala Ala Glu 470 475 480	37700
	GGG GCG GAA GGG CCC CTG GCC TGG GTG GTC TCC GGA CGC GAC GAG CCG Gly Ala Glu Gly Pro Leu Ala Trp Val Val Ser Gly Arg Asp Glu Pro 485 490 495 500	37748
45	GCC CTG CGG TCC CAG GCC CGG CGG CTC CGC GAC CAC CTC TCC CGC ACC Ala Leu Arg Ser Gln Ala Arg Arg Leu Arg Asp His Leu Ser Arg Thr 505 510 515	37796
50	CCC GGG GCC CGC CCG CGT GAC ATC GCC TTC TCC CTC GCC GCC ACG CGC Pro Gly Ala Arg Pro Arg Asp Ile Ala Phe Ser Leu Ala Ala Thr Arg 520 525 530	37844
55	GCA GCC TTT GAC CAC CGC GCC GTG CTG ATC GGC TCG GAC GGG GCC GAA Ala Ala Phe Asp His Arg Ala Val Leu Ile Gly Ser Asp Gly Ala Glu 535 540 545	37892

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	CTC	GCC	GCC	GCC	CTG	GAC	GCG	TTG	GCC	GAA	GGA	CGC	GAC	GGT	CCG	GCG	37940
	Leu	Ala	Ala	Ala	Leu	Asp	Ala	Leu	Ala	Glu	Gly	Arg	Asp	Gly	Pro	Ala	
	550						555					560					
5	GTG	GTG	CGC	GGA	GTC	CGC	GAC	CGG	GAC	GGC	AGG	ATG	GCC	TTC	CTC	TTC	37988
	Val	Val	Arg	Gly	Val	Arg	Asp	Arg	Asp	Gly	Arg	Met	Ala	Phe	Leu	Phe	
	565					570					575					580	
10	ACC	GGG	CAG	GGC	AGC	CAG	CGC	GCC	GGG	ATG	GCC	CAC	GAC	CTG	CAT	GCC	38036
	Thr	Gly	Gln	Gly	Ser	Gln	Arg	Ala	Gly	Met	Ala	His	Asp	Leu	His	Ala	
					585					590					595		
15	GCC	CAT	ACC	TTC	TTC	GCG	TCC	GCC	CTC	GAC	GAG	GTG	ACG	GAC	CGT	CTC	38084
	Ala	His	Thr	Phe	Phe	Ala	Ser	Ala	Leu	Asp	Glu	Val	Thr	Asp	Arg	Leu	
				600					605					610			
20	GAC	CCG	CTG	CTC	GGC	CGG	CCG	CTC	GGC	GCG	CTG	CTG	GAC	GCC	CGA	CCC	38132
	Asp	Pro	Leu	Leu	Gly	Arg	Pro	Leu	Gly	Ala	Leu	Leu	Asp	Ala	Arg	Pro	
			615					620					625				
25	GGC	TCG	CCC	GAA	GCG	GCA	CTC	CTG	GAC	CGG	ACC	GAG	TAC	ACC	CAG	CCG	38180
	Gly	Ser	Pro	Glu	Ala	Ala	Leu	Leu	Asp	Arg	Thr	Glu	Tyr	Thr	Gln	Pro	
		630					635					640					
30	GCG	CTC	TTC	GCC	GTC	GAG	GTG	GCG	CTC	CAC	CGG	CTG	CTG	GAG	CAC	TGG	38228
	Ala	Leu	Phe	Ala	Val	Glu	Val	Ala	Leu	His	Arg	Leu	Leu	Glu	His	Trp	
	645					650					655					660	
35	GGG	ATG	CGC	CCC	GAC	CTG	CTG	CTG	GGG	CAC	TCG	GTG	GGC	GAA	CTG	GCG	38276
	Gly	Met	Arg	Pro	Asp	Leu	Leu	Leu	Gly	His	Ser	Val	Gly	Glu	Leu	Ala	
					665					670					675		
40	GCC	GCC	CAC	GTC	GCG	GGT	GTG	CTC	GAT	CTC	GAC	GAC	GCC	TGC	GCG	CTG	38324
	Ala	Ala	His	Val	Ala	Gly	Val	Leu	Asp	Leu	Asp	Asp	Ala	Cys	Ala	Leu	
				680					685					690			
45	GTG	GCC	GCC	CGC	GGC	AGG	CTG	ATG	CAG	CGC	CTG	CCG	CCC	GGC	GGC	GCG	38372
	Val	Ala	Ala	Arg	Gly	Arg	Leu	Met	Gln	Arg	Leu	Pro	Pro	Gly	Gly	Ala	
			695				700						705				
50	ATG	GTC	TCC	GTG	CGG	GCC	GGC	GAG	GAC	GAG	GTC	CGC	GCA	CTG	CTG	GCC	38420
	Met	Val	Ser	Val	Arg	Ala	Gly	Glu	Asp	Glu	Val	Arg	Ala	Leu	Leu	Ala	
		710					715					720					
55	GGC	CGC	GAG	GAC	GCC	GTC	TGC	GTC	GCC	GCG	GTG	AAC	GGC	CCC	CGG	TCG	38468
	Gly	Arg	Glu	Asp	Ala	Val	Cys	Val	Ala	Ala	Val	Asn	Gly	Pro	Arg	Ser	
						730					735					740	
60	GTG	GTG	ATC	TCC	GGC	GCG	GAG	GAA	GCG	GTG	GCC	GAG	GCG	GCG	GCG	CAG	38516
	Val	Val	Ile	Ser	Gly	Ala	Glu	Glu	Ala	Val	Ala	Glu	Ala	Ala	Ala	Gln	
					745					750					755		
65	CTC	GCC	GGA	CGA	GGC	CGC	CGC	ACC	AGG	CGG	CTC	CGC	GTC	GCG	CAC	GCC	38564
	Leu	Ala	Gly	Arg	Gly	Arg	Arg	Thr	Arg	Arg	Leu	Arg	Val	Ala	His	Ala	
				760					765					770			
70	TTC	CAC	TCA	CCC	CTG	ATG	GAC	GGC	ATG	CTC	GCC	GGA	TTC	CGG	GAG	GTC	38612
	Phe	His	Ser	Pro	Leu	Met	Asp	Gly	Met	Leu	Ala	Gly	Phe	Arg	Glu	Val	
			775					780					785				

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	GCC GCC GGC CTG CGC TAC CGG GAA CCG GAG CTG ACG GTC GTC TCC ACG	38660
	Ala Ala Gly Leu Arg Tyr Arg Glu Pro Glu Leu Thr Val Val Ser Thr	
	790 795 800	
5	GTC ACG GGG CGG CCC GCC CGC CCC GGT GAA CTC ACC GGC CCC GAC TAC	38708
	Val Thr Gly Arg Pro Ala Arg Pro Gly Glu Leu Thr Gly Pro Asp Tyr	
	805 810 815 820	
10	TGG GTG GCC CAG GTC CGT GAG CCC GTG CGC TTC GCG GAC GCG GTC CGC	38756
	Trp Val Ala Gln Val Arg Glu Pro Val Arg Phe Ala Asp Ala Val Arg	
	825 830 835	
15	ACG GCA CAC CGC CTC GGA GCC CGC ACC TTC CTG GAG ACC GGC CCG GAC	38804
	Thr Ala His Arg Leu Gly Ala Arg Thr Phe Leu Glu Thr Gly Pro Asp	
	840 845 850	
20	GGC GTG CTG TGC GGC ATG GCA GAG GAG TGC CTG GAG GAC GAC ACC GTG	38852
	Gly Val Leu Cys Gly Met Ala Glu Glu Cys Leu Glu Asp Thr Val	
	855 860 865	
25	GCC CTG CTG CCG GCG ATC CAC AAG CCC GGC ACC GCG CCG CAC GGT CCG	38900
	Ala Leu Leu Pro Ala Ile His Lys Pro Gly Thr Ala Pro His Gly Pro	
	870 875 880	
30	GCG GCT CCC GGC GCG CTG CGG GCG GCC GCC GCG GCG TAC GGC CGG GGC	38948
	Ala Ala Pro Gly Ala Leu Arg Ala Ala Ala Ala Tyr Gly Arg Gly	
	885 890 895 900	
35	GCC CGG GTG GAC TGG GCC GGG ATG CAC GCC GAC GGC CCC GAG GGG CCG	38996
	Ala Arg Val Asp Trp Ala Gly Met His Ala Asp Gly Pro Glu Gly Pro	
	905 910 915	
40	GCC CGC CGC GTC GAA CTG CCC GTC CAC GCC TTC CCG CAC CGC CGC TAC	39044
	Ala Arg Arg Val Glu Leu Pro Val His Ala Phe Arg His Arg Arg Tyr	
	920 925 930	
45	TGG CTC GCC CCG GGC CGC GCG GCG GAC ACC GAC GAC TGG ATG TAC CGG	39092
	Trp Leu Ala Pro Gly Arg Ala Ala Asp Thr Asp Asp Trp Met Tyr Arg	
	935 940 945	
50	ATC GGC TGG GAC CGG CTG CCG GCT GTG ACC GGC GGG GCC CGG ACC GCC	39140
	Ile Gly Trp Asp Arg Leu Pro Ala Val Thr Gly Gly Ala Arg Thr Ala	
	950 955 960	
55	GGC CGC TGG CTG GTG ATC CAC CCC GAC AGC CCG CGC TGC CGG GAG CTG	39188
	Gly Arg Trp Leu Val Ile His Pro Asp Ser Pro Arg Cys Arg Glu Leu	
	965 970 975 980	
60	TCC GGC CAC GCC GAA CGC GCG CTG CGC GCC GCG GGC GCG AGC CCC GTA	39236
	Ser Gly His Ala Glu Arg Ala Leu Arg Ala Ala Gly Ala Ser Pro Val	
	985 990 995	
65	CCG CTG CCC GTG GAC GCT CCG GCC GCC GAC CCG GCG TCC TTC GCG GCA	39284
	Pro Leu Pro Val Asp Ala Pro Ala Ala Asp Arg Ala Ser Phe Ala Ala	
	1000 1005 1010	
70	CTG CTG CGC TCC GCC ACC GGA CCT GAC ACA CGA GGT GAC ACA GCC GCG	39332
	Leu Leu Arg Ser Ala Thr Gly Pro Asp Thr Arg Gly Asp Thr Ala Ala	
	1015 1020 1025	

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	CCC GTG GCC GGT GTG CTG TCG CTG CTG TCC GAG GAG GAT CGG CCC CAT	39380
	Pro Val Ala Gly Val Leu Ser Leu Leu Ser Glu Glu Asp Arg Pro His	
	1030 1035 1040	
5	CGC CAG CAC GCC CCG GTA CCC GCC GGG GTC CTG GCG ACG CTG TCC CTG	39428
	Arg Gln His Ala Pro Val Pro Ala Gly Val Leu Ala Thr Leu Ser Leu	
	1045 1050 1055 1060	
10	ATG CAG GCT ATG GAG GAG GAG GCG GTG GAG GCT CGC GTG TGG TGC GTC	39476
	Met Gln Ala Met Glu Glu Glu Ala Val Glu Ala Arg Val Trp Cys Val	
	1065 1070 1075	
15	TCC CGC GCC GCG GTC GCC GCC GCC GAC CGG GAA CGG CCC GTC GGC GCG	39524
	Ser Arg Ala Ala Val Ala Ala Ala Asp Arg Glu Arg Pro Val Gly Ala	
	1080 1085 1090	
20	GGC GCC GCC CTG TGG GGG CTG GGG CGG GTG GCC GCC CTG GAA CGC CCC	39572
	Gly Ala Ala Leu Trp Gly Leu Gly Arg Val Ala Ala Leu Glu Arg Pro	
	1095 1100 1105	
25	ACC CGG TGG GGC GGT CTC GTG GAC CTG CCC GCC TCG CCC GGT GCG GCG	39620
	Thr Arg Trp Gly Gly Leu Val Asp Leu Pro Ala Ser Pro Gly Ala Ala	
	1110 1115 1120	
30	CAC TGG GCG GCC GCC GTG GAA CGG CTC GCC GGT CCC GAG GAC CAG ATC	39668
	His Trp Ala Ala Ala Val Glu Arg Leu Ala Gly Pro Glu Asp Gln Ile	
	1125 1130 1135 1140	
35	GCC GTG CGC GCG TCC GGC AGT TGG GGC CGG CGC CTC ACC AGG CTG CCG	39716
	Ala Val Arg Ala Ser Gly Ser Trp Gly Arg Arg Leu Thr Arg Leu Pro	
	1145 1150 1155	
40	CGC GAC GGC GGC GGC CGG ACG GCC GCA CCC GCG TAC CGG CCG CGC GGC	39764
	Arg Asp Gly Gly Gly Arg Thr Ala Ala Pro Ala Tyr Arg Pro Arg Gly	
	1160 1165 1170	
45	ACG GTG CTC GTC ACC GGT GGC ACC GGC GCG CTC GGC GGG CAT CTC GCC	39812
	Thr Val Leu Val Thr Gly Gly Thr Gly Ala Leu Gly Gly His Leu Ala	
	1175 1180 1185	
50	CGC TGG CTC GCC GCG GCG GGC GCC GAA CAC CTG GCG CTC ACC AGC CGC	39860
	Arg Trp Leu Ala Ala Ala Gly Ala Glu His Leu Ala Leu Thr Ser Arg	
	1190 1195 1200	
55	CGG GGC CCG GAC GCG CCC GGC GCC GCC GGA CTC GAG GCC GAA CTC CTC	39908
	Arg Gly Pro Asp Ala Pro Gly Ala Ala Gly Leu Glu Ala Glu Leu Leu	
	1205 1210 1215 1220	
60	CTC CTG GGC GCC AAG GTG ACG TTC GCC GCC TGC GAC ACC GCC GAC CGC	39956
	Leu Leu Gly Ala Lys Val Thr Phe Ala Ala Cys Asp Thr Ala Asp Arg	
	1225 1230 1235	
65	GAC GGC CTC GCC CCG GTC CTG CGG GCG ATA CCG GAG GAC ACC CCG CTC	40004
	Asp Gly Leu Ala Arg Val Leu Arg Ala Ile Pro Glu Asp Thr Pro Leu	
	1240 1245 1250	
70	ACC GCG GTG TTC CAC GCC GCG GGC GTA CCG CAG GTC ACG CCG CTG TCC	40052
	Thr Ala Val Phe His Ala Ala Gly Val Pro Gln Val Thr Pro Leu Ser	
	1255 1260 1265	

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	CGT ACC TCG CCC GAG CAC TTC GCC GAC GTG TAC GCG GGC AAG GCG GCG	40100
	Arg Thr Ser Pro Glu His Phe Ala Asp Val Tyr Ala Gly Lys Ala Ala	
	1270 1275 1280	
5	GGC GCC GCG CAC CTG GAC GAA CTG ACC CGC GAA CTC GGC GCC GGA CTC	40148
	Gly Ala Ala His Leu Asp Glu Leu Thr Arg Glu Leu Gly Ala Gly Leu	
	1285 1290 1295 1300	
10	GAC GCG TTC GTC CTC TAC TCC TCC GGC GCC GGC GTC TGG GGC AGC GCC	40196
	Asp Ala Phe Val Leu Tyr Ser Ser Gly Ala Gly Val Trp Gly Ser Ala	
	1305 1310 1315	
15	GGC CAG GGT GCC TAC GCC GCC GCC AAC GCC GCC CTG GAC GCG CTC GCC	40244
	Gly Gln Gly Ala Tyr Ala Ala Ala Asn Ala Ala Leu Asp Ala Leu Ala	
	1320 1325 1330	
20	CGG CGC CGT GCG GCG GAC GGA CTC CCC GCC ACC TCC ATC GCC TGG GGC	40292
	Arg Arg Arg Ala Ala Asp Gly Leu Pro Ala Thr Ser Ile Ala Trp Gly	
	1335 1340 1345	
25	GTG TGG GGC GGC GGC GGT ATG GGG GCC GAC GAG GCG GGC GCG GAG TAT	40340
	Val Trp Gly Gly Gly Gly Met Gly Ala Asp Glu Ala Gly Ala Glu Tyr	
	1350 1355 1360	
30	CTG GGC CGG CGC GGT ATG CGC CCC ATG GCA CCG GTC TCC GCG CTC CGG	40388
	Leu Gly Arg Arg Gly Met Arg Pro Met Ala Pro Val Ser Ala Leu Arg	
	1365 1370 1375 1380	
35	GCG ATG GCC ACC GCC ATC GCC TCC GGG GAA CCC TGC CCC ACC GTC ACC	40436
	Ala Met Ala Thr Ala Ile Ala Ser Gly Glu Pro Cys Pro Thr Val Thr	
	1385 1390 1395	
40	CAC ACC GAC TGG GAG CGC TTC GGC GAG GGC TTC ACC GCC TTC CGG CCC	40484
	His Thr Asp Trp Glu Arg Phe Gly Glu Gly Phe Thr Ala Phe Arg Pro	
	1400 1405 1410	
45	AGC CCT CTG ATC GCG GGG CTC GGC ACG CCG GGC GGC GGC CGG GCG GCG	40532
	Ser Pro Leu Ile Ala Gly Leu Gly Thr Pro Gly Gly Gly Arg Ala Ala	
	1415 1420 1425	
50	GAG ACC CCC GAG GAG GGG AAC GCC ACC GCT GCG GCG GAC CTC ACC GCC	40580
	Glu Thr Pro Glu Glu Gly Asn Ala Thr Ala Ala Asp Leu Thr Ala	
	1430 1435 1440	
55	CTG CCG CCC GCC GAA CTC CGC ACC GCG CTG CGC GAG CTG GTG CGA GCC	40628
	Leu Pro Pro Ala Glu Leu Arg Thr Ala Leu Arg Glu Leu Val Arg Ala	
	1445 1450 1455 1460	
60	CGG ACC GCC GCG GCG CTC GGC CTC GAC GAT CCG GCC GAG GTC GCC GAG	40676
	Arg Thr Ala Ala Ala Leu Gly Leu Asp Asp Pro Ala Glu Val Ala Glu	
	1465 1470 1475	
65	GGC GAA CGG TTC CCC GCC ATG GGC TTC GAC TCC CTG GCC ACC GTA CGG	40724
	Gly Glu Arg Phe Pro Ala Met Gly Phe Asp Ser Leu Ala Thr Val Arg	
	1480 1485 1490	
70	CTG CGC CGC GGA CTC GCC TCG GCC ACG GGC CTC GAC CTG CCC CCC GAT	40772
	Leu Arg Arg Gly Leu Ala Ser Ala Thr Gly Leu Asp Leu Pro Pro Asp	
	1495 1500 1505	

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	CTG CTC TTC GAC CGG GAC ACC CCG GCC GCG CTC GCC GCC CAC CTG GCC Leu Leu Phe Asp Arg Asp Thr Pro Ala Ala Leu Ala Ala His Leu Ala 1510 1515 1520	40820
5	GAA CTG CTC GCC ACC GCA CGG GAC CAC GGA CCC GGC GGC CCC GGG ACC Glu Leu Leu Ala Thr Ala Arg Asp His Gly Pro Gly Gly Pro Gly Thr 1525 1530 1535 1540	40868
10	GGT GCC GCG CCG GCC GAT GCC GGA AGC GGC CTG CCG GCC CTC TAC CGG Gly Ala Ala Pro Ala Asp Ala Gly Ser Gly Leu Pro Ala Leu Tyr Arg 1545 1550 1555	40916
15	GAG GCC GTC CGC ACC GGC CGG GCC GCG GAA ATG GCC GAA CTG CTC GCC Glu Ala Val Arg Thr Gly Arg Ala Ala Glu Met Ala Glu Leu Leu Ala 1560 1565 1570	40964
	GCC GCT TCC CGG TTC CGC CCC GCC TTC GGG ACG GCG GAC CGG CAG CCG Ala Ala Ser Arg Phe Arg Pro Ala Phe Gly Thr Ala Asp Arg Gln Pro 1575 1580 1585	41012
20	GTG GCC CTC GTG CCG CTG GCC GAC GGC GCG GAG GAC ACC GGG CTC CCG Val Ala Leu Val Pro Leu Ala Asp Gly Ala Glu Asp Thr Gly Leu Pro 1590 1595 1600	41060
25	CTG CTC GTG GGC TGC GCC GGG ACG GCG GTG GCC TCC GGC CCG GTG GAG Leu Leu Val Gly Cys Ala Gly Thr Ala Val Ala Ser Gly Pro Val Glu 1605 1610 1615 1620	41108
	TTC ACC GCC TTC GCC GGA GCG CTG GCG GAC CTC CCG GCG GCG GCC CCG Phe Thr Ala Phe Ala Gly Ala Leu Ala Asp Leu Pro Ala Ala Ala Pro 1625 1630 1635	41156
30	ATG GCC GCG CTG CCG CAG CCC GGC TTT CTG CCG GGA GAA CGA GTC CCG Met Ala Ala Leu Pro Gln Pro Gly Phe Leu Pro Gly Glu Arg Val Pro 1640 1645 1650	41204
35	GCC ACC CCG GAG GCA TTG TTC GAG GCC CAG GCG GAA GCG CTG CTG CGC Ala Thr Pro Glu Ala Leu Phe Glu Ala Gln Ala Glu Ala Leu Leu Arg 1655 1660 1665	41252
40	TAC GCG GCC GGC CGG CCC TTC CTC CTG CTG GGG CAC TCC GCC GGC GCC Tyr Ala Ala Gly Arg Pro Phe Val Leu Leu Gly His Ser Ala Gly Ala 1670 1675 1680	41300
	AAC ATG GCC CAC GCC CTG ACC CGT CAT CTG GAG GCG AAC GGT GGC GGC Asn Met Ala His Ala Leu Thr Arg His Leu Glu Ala Asn Gly Gly Gly 1685 1690 1695 1700	41348
45	CCC GCA GGG CTG GTG CTC ATG GAC ATC TAC ACC CCC GCC GAC CCC GGC Pro Ala Gly Leu Val Leu Met Asp Ile Tyr Thr Pro Ala Asp Pro Gly 1705 1710 1715	41396
50	GCG ATG GGC GTC TGG CGG AAC GAC ATG TTC CAG TGG GTC TGG CGG CGC Ala Met Gly Val Trp Arg Asn Asp Met Phe Gln Trp Val Trp Arg Arg 1720 1725 1730	41444
55	TCG GAC ATC CCC CCG GAC GAC CAC CGC CTC ACG GCC ATG GGC GCC TAC Ser Asp Ile Pro Pro Asp Asp His Arg Leu Thr Ala Met Gly Ala Tyr 1735 1740 1745	41492

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	CAC CGG CTG CTT CTC GAC TGG TCG CCC ACC CCC GTC CGC GCC CCC GTA His Arg Leu Leu Leu Asp Trp Ser Pro Thr Pro Val Arg Ala Pro Val 1750 1755 1760	41540
5	CTG CAT CTG CGC GCC GCG GAA CCC ATG GGC GAC TGG CCA CCC GGG GAC Leu His Leu Arg Ala Ala Glu Pro Met Gly Asp Trp Pro Pro Gly Asp 1765 1770 1775 1780	41588
10	ACC GGC TGG CAG TCC CAC TGG GAC GGC GCG CAC ACC ACC GCC GGC ATC Thr Gly Trp Gln Ser His Trp Asp Gly Ala His Thr Thr Ala Gly Ile 1785 1790 1795	41636
15	CCC GGA AAC CAC TTC ACG ATG ATG ACC GAA CAC GCC TCC GCC GCC GCC Pro Gly Asn His Phe Thr Met Met Thr Glu His Ala Ser Ala Ala Ala 1800 1805 1810	41684
	CGG CTC GTG CAC GGC TGG CTC GCG GAA CGG ACC CCG TCC GGG CAG GGC Arg Leu Val His Gly Trp Leu Ala Glu Arg Thr Pro Ser Gly Gln Gly 1815 1820 1825	41732
20	GGG TCA CCG TCC CGC GCG GCG GGG AGA GAG GAG AGG CCG TGA Gly Ser Pro Ser Arg Ala Ala Gly Arg Glu Glu Arg Pro * 1830 1835 1840	41774
	ACACGGCAGC CGGCCCGACC GGCACCGCCG CCGGCGGCAC CACCGCCCCG GCGGCGGCAC	41834
25	ACGACCTGTC CCGCGCCGGA CGCAGGCTCC AACTCACCCG GGCCGCACAG TGGTTCGCCG	41894
	GCAACCAGGG AGACCCCTAC GGGATGATCC TGCGCGCCGG CACCGCCGAC CCGGCACCGT	41954
30	ACGAGGAAGA GATCCGTGAG CGGGGGCCGC TGTTCCACAG CGAACTCCTC GGCGCCTGGG	42014
	TGACCGGCAG CCGCCATGTC GCCGACGCCG TGACGGCCGA CGACGCGTTC GGCGCCCTCA	42074
	CCGCGGACGG TGCACGGCCA GGAGTCCGCG AACTGCCGCT CTCCGGCAGC GCCCTCGACG	42134
35	CCGCCCCAGG GAACCCCGGC GGCCCGCCCC TCCCCGAGG GTGGCCGCAC CGGCCCCCGG	42194
	ACAGGGAGGA GCGAGACGAC CCGGACCGGC ACGCGCGGGA CCTGCTGAAC GCCGCCGGCC	42254
	CGGGGCAGGT CCTCGACCTC GTCCCGTTCC CCCGGCGGCT GGCGGCCCGG ACGGCCGGCG	42314
40	CGTGGCTGGG CGTCCCGGCG GAACGGCTGC CGCGCTTCGA GACGGCACTC ACCGGCTGCC	42374
	GCCGCGCCCT CGACGCCCTG CTCTGCCCCC AGCTCCTGGC CGACGCGCGG GCCGGACTGG	42434
	CCGCGGAGGA GGCCCTGCGC GCCGTGCTCG GCGAGACCCC GGAGGCACGC GGACGTCCGC	42494
45	CCGGCGCGGT CGAGGCGGCC CGCGCGCAG CCGTCAGCGC GGCGGAGCCC ATCGCCGTCC	42554
	TGCTGTGCAA CGCGGTGCGG GAACTGATGG AACGGCCGGC CCAGTGCGCG GCGCTCACC	42614
50	CCGACCCCGG CCTGGCGGGC GCCGCGATCA CCGAAACACT GCTCTGGGCA CCGCCGGTGC	42674
	GCCTGGAGAG CAGGGTGGCA CGCGAGACGG CCGTACTCGC CGGGCGGACG CTGCCCGCTG	42734
	GAACCCATCT CGTCGTCTC GCCGCCGCC CCAACCGCGA CGCCTGCCGG AACGCCGGTC	42794
55	CGGCCGTCAC CGGCTTCGAC GTCTCCGCC GCGCCTCGGA CGGCGGCCCC CAGCCCCACG	42854

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GACTCCCGGA GGACCTGCAC TTCCGTCTCT CGGGCCCGCT CGTCCGGCGG ACCGCCGAGG 42914
 CCGGTCTGAG GGCGCTCGCC GAACGCTTCC CCGGCTGCGC CCGGCCGGCC CCGCAGTCCG 42974
 5 AGTCCGCCCG TCACCGGTGC TCCGCGGTCT CGGCCGGCTG CCCGTCGCCC CGTATGTCCC 43034
 CGAGTGAGAA GGGCACTGGA TGACCGCCGC CGAGGACCGC ACGGACCGGA AGGGAAACCG 43094
 CCGATGCGCG TACTGCTGAC CTGTATCGCG CACAACACCC ACTACTACAA CCTGGTGCCG 43154
 10 GTCGCCTGGG CCCTGAGAGC GGCCGGACAC GAGGTGCGGG TGGCCGCGCA GCCCGCCCTC 43214
 ACCGACACGA TCACCGCCTC CGGACTGACC GCCGTGCCGG TCGGCGGCAA CGAGTCCGTG 43274
 CTCGAG 43280

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4473 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Ser Ser Ala Leu Arg Arg Ala Val Gln Ser Asn Cys Gly Tyr Gly
 1 5 10 15
 Asp Leu Met Thr Ser Asn Thr Ala Ala Gln Asn Thr Gly Asp Gln Glu
 20 25 30
 Asp Val Asp Gly Pro Asp Ser Thr His Gly Gly Glu Ile Ala Val Val
 35 40 45
 Gly Met Ser Cys Arg Leu Pro Gly Ala Ala Gly Val Glu Glu Phe Trp
 50 55 60
 Glu Leu Leu Arg Ser Gly Arg Gly Met Pro Thr Arg Gln Asp Asp Gly
 65 70 75 80
 Thr Trp Arg Ala Ala Leu Glu Asp His Ala Gly Phe Asp Ala Gly Phe
 85 90 95
 Phe Gly Met Asn Ala Arg Gln Ala Ala Ala Thr Asp Pro Gln His Arg
 100 105 110
 45 Leu Met Leu Glu Leu Gly Trp Glu Ala Leu Glu Asp Ala Gly Ile Val
 115 120 125
 Pro Gly Asp Leu Thr Gly Thr Asp Thr Gly Val Phe Ala Gly Val Ala
 130 135 140
 50 Ser Asp Asp Tyr Ala Val Leu Thr Arg Arg Ser Ala Val Ser Ala Gly
 145 150 155 160
 Gly Tyr Thr Ala Thr Gly Leu His Arg Ala Leu Ala Ala Asn Arg Leu
 55 165 170 175

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	Ser His Phe Leu Gly Leu Arg Gly Pro Ser Leu Val Val Asp Ser Ala	180	185	190
5	Gln Ser Ala Ser Leu Val Ala Val Gln Leu Ala Cys Glu Ser Leu Arg	195	200	205
	Arg Gly Glu Thr Ser Leu Ala Val Ala Gly Gly Val Asn Leu Ile Leu	210	215	220
10	Thr Glu Glu Ser Thr Thr Val Met Glu Arg Met Gly Ala Leu Ser Pro	225	230	235
	Asp Gly Arg Cys His Thr Phe Asp Ala Arg Ala Asn Gly Tyr Val Arg	245	250	255
15	Gly Glu Gly Gly Gly Ala Val Val Leu Lys Pro Leu Asp Ala Ala Leu	260	265	270
	Ala Asp Gly Asp Arg Val Tyr Cys Val Ile Lys Gly Gly Ala Val Asn	275	280	285
20	Asn Asp Gly Gly Gly Ala Ser Leu Thr Thr Pro Asp Arg Glu Ala Gln	290	295	300
	Glu Ala Val Leu Arg Gln Ala Tyr Arg Arg Ala Gly Val Ser Thr Gly	305	310	315
25	Ala Val Arg Tyr Val Glu Leu His Gly Thr Gly Thr Arg Ala Gly Asp	325	330	335
	Pro Val Glu Ala Ala Ala Leu Gly Ala Val Leu Gly Ala Gly Ala Asp	340	345	350
30	Ser Gly Arg Ser Thr Pro Leu Ala Val Gly Ser Val Lys Thr Asn Val	355	360	365
	Gly His Leu Glu Gly Ala Ala Gly Ile Val Gly Leu Ile Lys Ala Thr	370	375	380
35	Leu Cys Val Arg Lys Gly Glu Leu Val Pro Ser Leu Asn Phe Ser Thr	385	390	395
	Pro Asn Pro Asp Ile Pro Leu Asp Asp Leu Arg Leu Arg Val Gln Thr	405	410	415
40	Glu Arg Gln Glu Trp Asn Glu Glu Asp Asp Arg Pro Arg Val Ala Gly	420	425	430
	Val Ser Ser Phe Gly Met Gly Gly Thr Asn Val His Leu Val Ile Ala	435	440	445
45	Glu Ala Pro Ala Ala Ala Gly Ser Ser Gly Ala Gly Gly Ser Gly Ala	450	455	460
50	Gly Ser Gly Ala Gly Ile Ser Ala Val Ser Gly Val Val Pro Val Val	465	470	475
	Val Ser Gly Arg Ser Arg Val Val Val Arg Glu Ala Ala Gly Arg Leu	485	490	495
55				

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	Ala	Glu	Val	Val	Glu	Ala	Gly	Gly	Val	Gly	Leu	Ala	Asp	Val	Ala	Val	
				500					505					510			
5	Thr	Met	Ala	Asp	Arg	Ser	Arg	Phe	Gly	Tyr	Arg	Ala	Val	Val	Leu	Ala	
			515					520					525				
	Arg	Gly	Glu	Ala	Glu	Leu	Ala	Gly	Arg	Leu	Arg	Ala	Leu	Ala	Gly	Gly	
		530					535					540					
10	Asp	Pro	Asp	Ala	Gly	Val	Val	Thr	Gly	Ala	Val	Leu	Asp	Gly	Gly	Val	
	545					550					555					560	
	Val	Val	Gly	Ala	Ala	Pro	Gly	Gly	Ala	Gly	Ala	Ala	Gly	Gly	Ala	Gly	
					565					570					575		
15	Ala	Ala	Gly	Gly	Ala	Gly	Gly	Gly	Gly	Val	Val	Leu	Val	Phe	Pro	Gly	
					580				585					590			
	Gln	Gly	Thr	Gln	Trp	Val	Gly	Met	Gly	Ala	Gly	Leu	Leu	Gly	Ser	Ser	
			595					600						605			
20	Glu	Val	Phe	Ala	Ala	Ser	Met	Arg	Glu	Cys	Ala	Arg	Ala	Leu	Ser	Val	
		610					615					620					
	His	Val	Gly	Trp	Asp	Leu	Leu	Glu	Val	Val	Ser	Gly	Gly	Ala	Gly	Leu	
25	625					630					635					640	
	Glu	Arg	Val	Asp	Val	Val	Gln	Pro	Val	Thr	Trp	Ala	Val	Met	Val	Ser	
				645						650				655			
30	Leu	Ala	Arg	Tyr	Trp	Gln	Ala	Met	Gly	Val	Asp	Val	Ala	Ala	Val	Val	
				660					665					670			
	Gly	His	Ser	Gln	Gly	Glu	Ile	Ala	Ala	Ala	Thr	Val	Ala	Gly	Ala	Leu	
			675					680					685				
35	Ser	Leu	Glu	Asp	Ala	Ala	Ala	Val	Val	Ala	Leu	Arg	Ala	Gly	Leu	Ile	
		690					695					700					
	Gly	Arg	Tyr	Leu	Ala	Gly	Arg	Gly	Ala	Met	Ala	Ala	Val	Pro	Leu	Pro	
	705					710					715					720	
40	Ala	Gly	Glu	Val	Glu	Ala	Gly	Leu	Ala	Lys	Trp	Pro	Gly	Val	Glu	Val	
					725					730					735		
	Ala	Ala	Val	Asn	Gly	Pro	Ala	Ser	Thr	Val	Val	Ser	Gly	Asp	Arg	Arg	
				740					745					750			
45	Ala	Val	Ala	Gly	Tyr	Val	Ala	Val	Cys	Gln	Ala	Glu	Gly	Val	Gln	Ala	
			755					760					765				
	Arg	Leu	Ile	Pro	Val	Asp	Tyr	Ala	Ser	His	Ser	Arg	His	Val	Glu	Asp	
50		770					775					780					
	Leu	Lys	Gly	Glu	Leu	Glu	Arg	Val	Leu	Ser	Gly	Ile	Arg	Pro	Arg	Ser	
	785					790					795					800	
55	Pro	Arg	Val	Pro	Val	Cys	Ser	Thr	Val	Ala	Gly	Glu	Gln	Pro	Gly	Glu	
					805					810					815		

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	Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn Leu Arg Asn Arg Val	
	820	825 830
5	Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu Glu Gly His Arg Arg	
	835	840 845
	Phe Ile Glu Val Ser Ala His Pro Val Leu Val His Ala Ile Glu Gln	
	850	855 860
10	Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala Thr Gly Thr Leu Arg	
	865	870 875 880
	Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr Ser Thr Ala Glu Ala	
		885 890 895
15	Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro Ala Leu Pro Pro Gly	
		900 905 910
	His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn His His His Tyr Trp	
		915 920 925
20	Leu Asp Thr Ile Asp Gly Gly Gly Gly Asp Asp Ala Thr Gln Glu Lys	
	930	935 940
	Glu Ser Gly Pro Leu Thr Arg Glu Leu Arg Gly Leu Pro Ser Ser Gln	
25	945	950 955 960
	Lys Gln Leu Gly Phe Leu Leu Asp Leu Val Cys Arg His Thr Ala Val	
		965 970 975
	Val Leu Gly Leu Asp Thr Ala Ala Glu Val Asp Pro Asp Leu Ser Phe	
30		980 985 990
	Lys Lys Gln Gly Ile Gln Ser Met Thr Gly Val Glu Leu Arg Asn Arg	
	995	1000 1005
	Leu Leu Thr Glu Thr Gly Leu Ala Leu Pro Thr Thr Leu Val Tyr Asp	
35	1010	1015 1020
	Arg Pro Thr Pro Arg Ala Leu Ala Gln Phe Leu His Thr Glu Leu Leu	
	1025	1030 1035 1040
40	Asp Gly Ser Pro Ser Gly Ser Val Leu Ala Pro Ala Gln Lys Ser Phe	
		1045 1050 1055
	Glu Ala Gln Glu Pro Ile Ala Val Val Gly Met Gly Cys Arg Phe Pro	
		1060 1065 1070
45	Gly Gly Val Gly Ser Pro Glu Ala Leu Trp Arg Leu Val Val Glu Gly	
	1075	1080 1085
	Val Asp Ala Val Ser Pro Phe Pro Gly Asp Arg Gly Trp Asp Val Glu	
	1090	1095 1100
50	Gly Leu Tyr Asp Pro Glu Pro Gly Val Ala Gly Lys Ser Tyr Val Arg	
	1105	1110 1115 1120
	Glu Gly Gly Phe Leu His Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe	
55		1125 1130 1135

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	Gly Ile Ser Pro Arg Glu Ala Val Ala Met Asp Pro Gln Gln Arg Leu	
	1140	1145 1150
5	Leu Leu Glu Thr Ser Trp Glu Ala Ile Glu Arg Ala Gly Ile Asp Pro	
	1155	1160 1165
	His Ser Leu His Gly Ser Arg Thr Gly Val Tyr Ala Gly Val Met Pro	
	1170	1175 1180
10	Gln Glu Tyr Gly Pro Arg Leu Ala Glu Gly Ala Glu Gly Ser Asp Gly	
	1185	1190 1195 1200
	Tyr Leu Leu Thr Gly Thr Ser Gly Ser Val Val Ser Gly Arg Val Ala	
	1205	1210 1215
15	Tyr Thr Leu Gly Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys	
	1220	1225 1230
	Ser Ser Ser Leu Val Ala Leu His Leu Ala Val Gln Ala Leu Arg Gly	
	1235	1240 1245
20	Gly Glu Cys Asp Met Ala Leu Ala Gly Gly Val Thr Val Met Ala Gly	
	1250	1255 1260
	Pro Gly Met Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp	
25	1265	1270 1275 1280
	Gly Arg Cys Lys Ala Phe Ala Asp Gly Ala Asp Gly Thr Ala Trp Ala	
	1285	1290 1295
30	Glu Gly Ala Gly Val Val Leu Val Glu Arg Leu Ser Asp Ala Arg Arg	
	1300	1305 1310
	Leu Gly His Pro Val Leu Ala Val Val Cys Gly Ser Ala Val Asn Gln	
	1315	1320 1325
35	Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ser Gln Glu	
	1330	1335 1340
	Arg Val Ile Arg Gln Ala Leu Gly Asn Ala Arg Leu Thr Val Ala Asp	
	1345	1350 1355 1360
40	Val Asp Val Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro	
	1365	1370 1375
	Ile Glu Ala Gln Ala Leu Leu Gly Thr Tyr Gly Arg Asp Arg Asp Gly	
	1380	1385 1390
45	Gly Arg Pro Val Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala	
	1395	1400 1405
	Gln Ala Ala Ala Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Met	
50	1410	1415 1420
	Arg Tyr Gly Trp Leu Pro Arg Thr Leu His Val Asp Glu Pro Ser Arg	
	1425	1430 1435 1440
55	His Val Asp Trp Ser Ala Gly Gly Val Trp Leu Leu Thr Glu Ala Arg	
	1445	1450 1455

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Glu Trp Pro Gly Val Asp Arg Pro Arg Arg Ala Ala Val Ser Ala Phe
 1460 1465 1470
 5 Gly Val Ser Gly Thr Asn Ala His Leu Ile Leu Glu Ala Pro Asp Thr
 1475 1480 1485
 Ala Glu Ala Glu Ser Ala Thr Thr Pro Val Arg Ser Glu Val Ser Glu
 1490 1495 1500
 10 Ser Ala Ala Val Leu Asp Ala Arg Ser Gly Val Val Pro Val Val Val
 1505 1510 1515 1520
 Ser Gly Arg Ser Arg Val Val Val Arg Glu Ala Ala Gly Arg Leu Ala
 1525 1530 1535
 15 Glu Val Val Glu Ala Gly Gly Val Gly Leu Ala Asp Val Ala Val Thr
 1540 1545 1550
 Met Ala Gly Arg Ser Arg Phe Gly Tyr Arg Ala Val Val Leu Ala Arg
 1555 1560 1565
 20 Gly Glu Ala Glu Leu Ala Gly Arg Leu Arg Ala Leu Ala Gly Gly Asp
 1570 1575 1580
 Pro Asp Ala Gly Val Val Thr Gly Ala Val Val Asp Pro Glu Thr Gly
 1585 1590 1595 1600
 25 Ser Gly Gly Gly Gly Val Val Leu Val Phe Pro Gly Gln Gly Thr Gln
 1605 1610 1615
 Trp Val Gly Met Gly Ala Gly Leu Leu Gly Ser Ser Glu Val Phe Ala
 1620 1625 1630
 30 Ala Ser Met Arg Glu Cys Ala Arg Ala Leu Ser Val His Val Glu Trp
 1635 1640 1645
 Asp Leu Leu Glu Val Val Ser Gly Gly Ala Gly Leu Glu Arg Val Asp
 1650 1655 1660
 35 Val Val Gln Pro Val Thr Trp Ala Val Met Val Ser Leu Ala Arg Tyr
 1665 1670 1675 1680
 40 Trp Gln Ala Met Gly Val Asp Val Ala Ala Val Val Gly His Ser Gln
 1685 1690 1695
 Gly Glu Ile Ala Ala Ala Thr Val Ala Gly Ala Leu Ser Leu Glu Asp
 1700 1705 1710
 45 Ala Ala Ala Val Val Ala Leu Arg Ala Gly Leu Ile Gly Arg Tyr Leu
 1715 1720 1725
 Ala Gly Arg Gly Ala Met Ala Ala Val Pro Leu Pro Ala Gly Glu Val
 1730 1735 1740
 50 Glu Ala Gly Leu Ala Lys Trp Pro Gly Val Glu Val Ala Ala Val Asn
 1745 1750 1755 1760
 Gly Pro Ala Ser Thr Val Val Ser Gly Asp Arg Arg Ala Val Ala Gly
 1765 1770 1775
 55

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	Tyr Val Ala Val Cys Gln Ala Glu Gly Val Gln Ala Arg Leu Ile Pro	1780	1785	1790
5	Val Asp Tyr Ala Ser His Ser Arg His Val Glu Asp Leu Lys Gly Glu	1795	1800	1805
	Leu Glu Arg Val Leu Ser Gly Ile Arg Pro Arg Ser Pro Arg Val Pro	1810	1815	1820
10	Val Cys Ser Thr Val Ala Gly Glu Gln Pro Gly Glu Pro Val Phe Asp	1825	1830	1835
	Ala Gly Tyr Trp Phe Arg Asn Leu Arg Asn Arg Val Glu Phe Ser Ala	1845	1850	1855
15	Val Val Gly Gly Leu Leu Glu Glu Gly His Arg Arg Phe Ile Glu Val	1860	1865	1870
	Ser Ala His Pro Val Leu Val His Ala Ile Glu Gln Thr Ala Glu Ala	1875	1880	1885
20	Ala Asp Arg Ser Val His Ala Thr Gly Thr Leu Arg Arg Gln Asp Asp	1890	1895	1900
	Ser Pro His Arg Leu Leu Thr Ser Thr Ala Glu Ala Trp Ala His Gly	1905	1910	1915
25	Ala Thr Leu Thr Trp Asp Pro Ala Leu Pro Pro Gly His Leu Thr Thr	1925	1930	1935
	Leu Pro Thr Tyr Pro Phe Asn His His His Tyr Trp Leu Asp Thr Thr	1940	1945	1950
30	Pro Thr Thr Pro Ala Thr Thr Thr Gln Ser Pro Thr Asp Ala Trp Arg	1955	1960	1965
	Tyr Arg Val Thr Trp Lys Ala Leu Thr Glu Ser Ser Pro Val Arg Pro	1970	1975	1980
35	His Ser Ile Gly Arg Cys Leu Leu Val Ala Pro Pro Thr Thr Asp Gly	1985	1990	1995
	Glu Leu Leu Asp Gly Leu Thr Thr Val Leu Ser Glu Arg Gly Ala Ser	2005	2010	2015
40	Val Ala Arg Leu Glu Val Pro Ile Gly Ala Arg Arg Ala Glu Val Ala	2020	2025	2030
45	Glu Leu Leu Lys Pro Ser Met Glu Ser Ala Gly Glu Glu Asn Thr Thr	2035	2040	2045
	Val Val Ser Leu Leu Gly Leu Val Pro Ser Thr Asp Ala Val Arg Thr	2050	2055	2060
50	Ser Ile Ala Leu Leu Gln Ala Val Ser Asp Ile Gly Val Pro Ala Ala	2065	2070	2075
	Arg Val Trp Ala Leu Thr Arg Arg Ala Val Ala Val Val Pro Gly Glu	2085	2090	2095
55				

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	Thr Pro Gln Asp Ala Gly Ala Gln Leu Trp Gly Phe Gly Arg Val Ala	
	2100	2110
5	Ala Leu Glu Leu Pro Asp Ile Trp Gly Gly Leu Ile Asp Leu Pro Glu	
	2115	2120 2125
	Thr Ala Glu Leu Thr Arg Thr Pro Glu Thr Ser Gln Pro Pro Gln Thr	
	2130	2135 2140
10	Pro Glu Arg Leu Pro Gln Thr Pro Asn Arg Arg Ala Leu Glu Leu Ala	
	2145	2150 2155 2160
	Ala Ala Val Leu Ala Gly Arg Asp Gly Glu Asp Gln Val Ala Val Arg	
		2165 2170 2175
15	Ala Ser Gly Ile Tyr Gly Arg Arg Val Ser Arg Ala Ala Ala Ala Gly	
		2180 2185 2190
	Ala Ala Ser Trp Gln Pro Ser Gly Thr Val Leu Ile Thr Gly Gly Met	
	2195	2200 2205
20	Gly Ala Ile Gly Arg Arg Leu Ala Arg Arg Leu Ala Ala Glu Gly Ala	
	2210	2215 2220
	Glu Arg Leu Val Leu Thr Ser Arg Arg Gly Pro Glu Ala Pro Gly Ala	
25	2225	2230 2235 2240
	Ala Glu Leu Ala Glu Glu Leu Arg Gly His Gly Cys Glu Val Val His	
		2245 2250 2255
	Ala Ala Cys Asp Val Ala Glu Arg Asp Ala Leu Ala Ala Leu Val Thr	
30		2260 2265 2270
	Ala Tyr Pro Pro Asn Ala Val Phe His Thr Ala Gly Ile Leu Asp Asp	
	2275	2280 2285
	Ala Val Ile Asp Thr Leu Ser Pro Glu Ser Phe Glu Thr Val Arg Gly	
35	2290	2295 2300
	Ala Lys Val Cys Gly Ala Glu Leu Leu His Gln Leu Thr Ala Asp Ile	
	2305	2310 2315 2320
40	Lys Gly Leu Asp Ala Phe Val Leu Phe Ser Ser Val Thr Gly Thr Trp	
		2325 2330 2335
	Gly Asn Ala Gly Gln Gly Ala Tyr Ala Ala Ala Asn Ala Ala Leu Asp	
	2340	2345 2350
45	Ala Leu Ala Glu Arg Arg Arg Ala Ala Gly Leu Pro Ala Thr Ser Val	
	2355	2360 2365
	Ala Trp Gly Leu Trp Gly Gly Gly Gly Met Ala Ala Gly Ala Gly Glu	
	2370	2375 2380
50	Glu Ser Leu Ser Arg Arg Gly Leu Arg Ala Met Asp Pro Asp Ala Ala	
	2385	2390 2395 2400
	Val Asp Ala Leu Leu Gly Ala Met Gly Arg Asn Asp Val Cys Val Thr	
55		2405 2410 2415

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	Val Val Asp Val Asp Trp Glu Arg Phe Ala Pro Ala Thr Asn Ala Ile	
	2420	2425 2430
5	Arg Pro Gly Arg Leu Phe Asp Thr Val Pro Glu Ala Arg Glu Ala Leu	
	2435	2440 2445
	Thr Ala Ala Gly Thr Thr Ser Ala Thr Pro Asp Gly Ala Pro Glu Leu	
	2450	2455 2460
10	Ala Arg Arg Leu Ser Met Leu Asn Glu Thr Glu Arg Leu Arg Lys Leu	
	2465	2470 2475 2480
	Val Glu Leu Val Arg Thr Glu Ala Ala Phe Val Leu Arg His Pro Asn	
	2485	2490 2495
15	Thr Asp Ala Ile Gly Ala Glu Arg Pro Phe Lys Ser Ala Gly Phe Asp	
	2500	2505 2510
	Ser Leu Thr Ser Leu Glu Leu Arg Asn Arg Leu Asn Ala Gly Thr Gly	
	2515	2520 2525
20	Leu Lys Leu Pro Ala Thr Val Ile Phe Asp His Pro Ser Pro Thr Ala	
	2530	2535 2540
	Leu Ala Arg Leu Leu Leu Asp Arg Leu Thr Gly Ala Gly Ala Pro Ala	
25	2545	2550 2555 2560
	Pro Ala Ala Asp Glu Pro Pro Leu Pro Val Ala Val Ala Asp Asp Asp	
	2565	2570 2575
30	Pro Val Val Ile Val Gly Met Ala Cys Arg Phe Pro Gly Gly Ala Gly	
	2580	2585 2590
	Thr Pro Glu Ala Leu Trp Lys Leu Val Thr Glu Glu Arg Asp Val Ile	
	2595	2600 2605
35	Gly Ala Ala Pro Thr Asp Arg Gly Trp Asp Leu Asp Ser Val Tyr Asp	
	2610	2615 2620
	Pro Glu Pro Gly Val Ala Gly Lys Thr Tyr Val Arg Glu Gly Gly Phe	
	2625	2630 2635 2640
40	Leu His Asp Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro	
	2645	2650 2655
	Arg Glu Ala Val Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr	
	2660	2665 2670
45	Ser Trp Glu Ala Ile Glu Arg Ala Gly Ile Asp Pro His Ser Leu His	
	2675	2680 2685
	Gly Ser Arg Thr Gly Val Tyr Val Gly Leu Thr His Gln Glu Tyr Ala	
	2690	2695 2700
50	Ser Arg Leu His Glu Ala Pro Glu Glu Tyr Glu Gly Tyr Leu Leu Thr	
	2705	2710 2715 2720
55	Gly Lys Ser Ala Ser Val Val Ser Gly Arg Ile Ser Tyr Thr Leu Gly	
	2725	2730 2735

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	Leu Glu Gly Pro Ser Leu Ser Ile Asp Thr Ala Cys Ser Ser Ser Leu	
	2740	2745 2750
5	Val Ala Leu His Asn Ala Ala Gln Ala Leu Arg Gly Gly Glu Cys Asp	
	2755	2760 2765
	Met Ala Leu Ala Gly Gly Val Thr Val Met Ala Ala Pro Gly Leu Phe	
	2770	2775 2780
10	Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys	
	2785	2790 2795 2800
	Ala Phe Ala Asp Gly Ala Asp Gly Thr Ala Trp Ala Glu Gly Ala Gly	
		2805 2810 2815
15	Val Val Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Leu Gly His Pro	
		2820 2825 2830
	Val Leu Ala Val Val Cys Gly Ser Ala Val Asn Gln Asp Gly Ala Ser	
	2835	2840 2845
20	Asn Gly Leu Thr Ala Pro Ser Gly Pro Ser Gln Glu Arg Val Ile Arg	
	2850	2855 2860
	Gln Ala Leu Ala Asn Ala Arg Leu Thr Val Ala Asp Val Asp Val Val	
25	2865	2870 2875 2880
	Glu Ala His Gly Thr Gly Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln	
		2885 2890 2895
30	Ala Leu Leu Gly Thr Tyr Gly Arg Asp Arg Asp Ala Glu Cys Pro Val	
	2900	2905 2910
	Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ala	
	2915	2920 2925
35	Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Met Arg Tyr Gly Trp	
	2930	2935 2940
	Leu Pro Arg Thr Leu His Val Asp Glu Pro Ser Arg His Val Asp Trp	
	2945	2950 2955 2960
40	Ser Ala Gly Gly Val Arg Leu Leu Thr Glu Ala Arg Glu Trp Pro Gly	
		2965 2970 2975
	Val Asp Arg Pro Arg Arg Ala Ala Val Ser Ala Phe Gly Val Ser Gly	
		2980 2985 2990
45	Thr Asn Ala His Leu Ile Leu Glu Ala Pro Glu Ala Leu Glu Ala Leu	
	2995	3000 3005
	Glu Ala Thr Asp Ala Pro Glu Ala Pro Glu Ala Pro Glu Ala Pro Asp	
50	3010	3015 3020
	Val Thr Asp Val Thr Glu Ala Leu Glu Ala Pro Asp Ala Thr Glu Ala	
	3025	3030 3035 3040
55	Glu Gly Ala Lys Ala Pro Gly Ser Pro Glu Glu Ala Gln Pro Ala Val	
		3045 3050 3055

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Gly Val Val Pro Val Val Val Ser Gly Arg Ser Arg Val Val Val Arg
 3060 3065 3070
 5 Glu Ala Ala Gly Arg Leu Ala Glu Val Val Glu Ala Gly Gly Val Gly
 3075 3080 3085
 Leu Ala Asp Val Ala Val Thr Met Ala Gly Arg Ser Arg Phe Gly Tyr
 3090 3095 3100
 10 Arg Ala Val Val Leu Ala Arg Gly Glu Ala Glu Leu Ala Gly Arg Leu
 3105 3110 3115 3120
 Arg Ala Leu Ala Gly Gly Asp Pro Asp Ala Gly Val Val Thr Gly Ala
 3125 3130 3135
 15 Val Val Asp Pro Glu Thr Gly Ser Gly Gly Gly Gly Val Val Leu Val
 3140 3145 3150
 Phe Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala Gly Leu Leu
 3155 3160 3165
 20 Gly Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys Ala Arg Ala
 3170 3175 3180
 Leu Ser Val His Val Glu Trp Asp Leu Leu Glu Val Val Ser Gly Gly
 3185 3190 3195 3200
 25 Ala Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Trp Ala Val
 3205 3210 3215
 Met Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val Asp Val Ala
 3220 3225 3230
 30 Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Thr Val Ala
 3235 3240 3245
 Gly Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala Leu Arg Ala
 3250 3255 3260
 35 Gly Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met Ala Ala Val
 3265 3270 3275 3280
 40 Pro Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys Trp Pro Gly
 3285 3290 3295
 Val Gln Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val Val Ser Gly
 3300 3305 3310
 45 Asp Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln Ala Glu Gly
 3315 3320 3325
 Val Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His Ser Arg His
 3330 3335 3340
 50 Val Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser Gly Ile Arg
 3345 3350 3355 3360
 55 Pro Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala Gly Glu Gln
 3365 3370 3375

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Pro Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn Leu Arg
3380 3385 3390

5 Asn Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu Gln Gly
3395 3400 3405

His Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu Val His Ala
3410 3415 3420

10 Ile Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala Thr Gly
3425 3430 3435 3440

Thr Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr Ser Thr
3445 3450 3455

15 Ala Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro Ala Leu
3460 3465 3470

Pro Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn His His
3475 3480 3485

20 His Tyr Trp Ala Val Thr Ser Pro Ala Gly Val Gly Asp Ala Ala Ala
3490 3495 3500

Gly Arg Phe Gly Met Thr Trp Glu Asp His Pro Phe Leu Arg Gly Gly
3505 3510 3515 3520

25 Leu Pro Leu Ala Asp Ser Gly Glu Arg Val Phe Ala Gly Arg Leu Ala
3525 3530 3535

Gly Ser Glu His Asp Trp Leu Thr Asp His Ala Val Ser Gly Val Thr
3540 3545 3550

30 Leu Leu Pro Gly Thr Ala Phe Val Glu Phe Ala Leu His Ala Gly Ala
3555 3560 3565

Ala Thr Gly Cys Gly Arg Leu Glu Glu Leu Ser Val Glu Ala Pro Leu
3570 3575 3580

35 Val Leu Pro Ala Ala Gly Gly Val Arg Val Gln Met Arg Val Ser Ala
3585 3590 3595 3600

40 Ala Asp Glu Ser Gly Arg Arg Arg Val Ala Ile His Ser Ala Pro Glu
3605 3610 3615

Ala Ala Val His Ser Ala Ala Glu Gly Gly Asp Ser Ala Gly Val Trp
3620 3625 3630

45 Thr Arg His Gly Glu Gly Thr Leu Val Pro Asp Pro Glu Pro Thr Pro
3635 3640 3645

Pro Asp Ala Asp Trp Ala Arg Ala Trp Pro Pro Ala Gly Glu Arg Val
3650 3655 3660

50 Glu Pro Ala Glu Leu Tyr Glu Arg Phe Gly Ala Leu Gly Tyr Glu Tyr
3665 3670 3675 3680

Gly Glu Ala Phe Ala Gly Val Arg Ala Val Trp Arg Gln Pro Asp Ala
3685 3690 3695

55

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Leu Leu Ala Glu Val Leu Leu Pro Asp Arg Ala Ser Thr Gly Ala Gly
3700 3705 3710

Arg Phe Gly Val His Pro Ala Leu Leu Asp Ala Ala Leu Gln Pro Trp
5 3715 3720 3725

Ile Ala Gly Gly Leu Leu Glu Val Pro Glu Asp Ala Val Leu Leu Pro
3730 3735 3740

Phe Ala Trp Gln Gly Val Ser Leu Tyr Ala Thr Gly Ala Gly Ala Leu
10 3745 3750 3755 3760

Arg Val Arg Leu Thr Lys Ala Gly Asp Gly Ala Val Ser Leu Gln Ala
3765 3770 3775

Ala Asp Thr Ser Gly Ala Ala Val Leu Ser Leu Gly Ala Leu Val Met
15 3780 3785 3790

Arg Pro Leu Ala Arg Arg Lys Leu Asp Val Leu Leu Gly Thr Asp Ala
3795 3800 3805

Gly Glu Arg Ser Leu Tyr Arg Val Glu Trp Gln Pro Arg Leu Leu Pro
20 3810 3815 3820

Ala Gly Pro Pro Arg Ser Trp Ala Val Leu Gly Pro Asp Ala Asp Arg
25 3825 3830 3835 3840

Leu Ala Gly Thr Pro Gly Leu Gly Asp Gln Pro Asp Gly Gly Pro Thr
3845 3850 3855

Ala Leu Tyr Pro Glu Val Arg Ala Leu Arg Lys Ala Leu Ala Ala Gly
30 3860 3865 3870

Ala Pro Arg Pro Glu Ala Val Val Leu Pro Val Leu Ser Gly Ala Gly
3875 3880 3885

Ala Thr Pro Glu Ser Val Arg Gln Thr Thr Glu Arg Cys Leu Thr Ala
35 3890 3895 3900

Leu Gln Asp Trp Leu Asp Ala Glu Glu Leu Val Asp Thr Pro Leu Ile
3905 3910 3915 3920

Val Leu Thr Arg Gly Ala Val Ala Ala Val Pro Gly Glu Glu Ile Gly
40 3925 3930 3935

Asp Leu Ala Cys Ala Gly Val Trp Gly Leu Val Arg Ser Ala Arg Ser
3940 3945 3950

Glu His Pro Gly Arg Phe Ala Leu Val Asp Thr Asp Gly His Pro Asp
45 3955 3960 3965

Asp Arg Thr Ala Leu Pro Leu Ala Leu Arg Ala Val Leu Asp Gly Ala
3970 3975 3980

Gly Gln Leu Ser Leu Arg Ala Gly Thr Ala Arg Thr Pro Val Leu Leu
50 3985 3990 3995 4000

Arg Ala Gly Thr Pro Glu Glu Gln Arg Gly Pro Ala Phe Asp Pro Ala
55 4005 4010 4015

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Gly Thr Val Leu Val Thr Gly Ala Thr Gly Thr Leu Gly Arg Leu Leu
4020 4025 4030

5 Ala Arg His Leu Ala Ala Glu His Gly Val Arg His Leu Leu Leu Leu
4035 4040 4045

Ser Arg Gly Gly Arg Ala Ala Glu Gly Ala Asp Glu Leu Ala Ala Glu
4050 4055 4060

10 Leu Ala Gly Leu Glu Ala Glu Pro Cys Phe Ala Ala Cys Asp Ala Ala
4065 4070 4075 4080

Asp Arg Glu Ala Leu Ala Arg Val Leu Ala Glu Val Pro Ala Asp Arg
4085 4090 4095

15 Pro Leu Thr Gly Val Ile His Ala Ala Gly Val Leu Asp Asp Gly Thr
4100 4105 4110

Leu Asp Ala Leu Thr Pro Glu Arg Ile Gly Thr Val Met Arg Pro Lys
4115 4120 4125

20 Ala Asp Ala Ala Leu Asn Leu His Glu Leu Thr Arg Thr Ser Pro Leu
4130 4135 4140

Ser Val Phe Ala Val Phe Ser Gly Ala Ala Gly Ile Leu Gly Arg Pro
4145 4150 4155 4160

25 Gly Gln Ala Asn Tyr Ala Ala Ala Asn Thr Phe Leu Asp Ala Leu Ala
4165 4170 4175

Gln His Arg Arg Ala His Gly Leu Pro Ala Val Ser Leu Ala Trp Gly
4180 4185 4190

30 Leu Trp Gly Gly Ala Thr Gly Met Thr Gly His Leu Ser Gly Thr Asp
4195 4200 4205

Leu Arg Arg Met Arg Arg Ser Gly Ile Ala Pro Met Thr His Asp Gln
4210 4215 4220

35 Gly Leu Ala Leu Phe Asp Arg Ala Leu Ala Ala Ser Ala Glu Asp Pro
4225 4230 4235 4240

40 Leu Leu Val Pro Met Arg Leu Asp Leu Ala Ala Leu Val Arg Glu Arg
4245 4250 4255

Ala Glu His Gly Pro Asp Ala Val Pro Gly Pro Leu Leu Gly Leu Leu
4260 4265 4270

45 Pro Ala Arg Ala Ala Val Arg Gln Ala Ala Ala Pro Val Arg Gly Gly
4275 4280 4285

Ala Pro Ala Pro Ala Gly Gly Glu Gly Thr Ala Glu Arg Leu Ala Gly
4290 4295 4300

50 Leu Gly Glu Glu Ala Arg Leu Arg Glu Leu Val Arg Leu Val Arg Ala
4305 4310 4315 4320

Glu Val Ser Gly Val Leu Gly Tyr Ser Gly Pro Asp Ala Val Glu Pro
4325 4330 4335

55

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Gly Arg Pro Phe Lys Asp Leu Gly Phe Asp Ser Leu Thr Ala Val Glu
4340 4345 4350

5 Leu Arg Asn Arg Leu Gly Ala Ala Thr Gly Leu Arg Leu Pro Thr Ala
4355 4360 4365

Leu Val Phe Asp Arg Pro Thr Ser Gln Ala Val Ala Glu Tyr Leu Ala
4370 4375 4380

10 Ala Glu Leu Ala Gly Pro Arg Asp Gly Gly Asp Thr Ala Ala Ala Ala
4385 4390 4395 4400

Phe Glu Gly Leu Glu Ala Leu Ala Ala Val Gly Ala Leu Ala Glu
4405 4410 4415

15 Asp Asp Leu Arg Arg Asp Val Leu Arg Arg Arg Leu Thr Glu Leu Ala
4420 4425 4430

Ala Ala Leu Thr Pro Gln Gly Arg Asn Pro Ser Ala Pro Ala Pro Ala
4435 4440 4445

20 Pro Ser Asp Leu Asp Glu Arg Leu Asp Ser Ala Asn Asp Asp Asp Leu
4450 4455 4460

Phe Ala Phe Ile Glu Glu Gln Leu *
25 4465 4470

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
30 (A) LENGTH: 1865 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: protein

35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Met Thr Ala Glu Leu Val Ala Thr Arg Lys Arg Leu Gly Ala Leu Glu
1 5 10 15

40 Glu Arg Ala Arg Glu Pro Ile Ala Val Val Ala Met Ser Cys Arg Tyr
20 25 30

Pro Gly Gly Val Thr Thr Pro Glu Asp Leu Trp Arg Leu Leu Ala Asp
35 40 45

45 Glu Arg Asp Ala Val Ser Gly Leu Pro Arg Asp Arg Gly Trp Asp Leu
50 55 60

Asp Ala Leu Tyr Asp Pro Asp Gly Gly Pro Gly Thr Ser Tyr Ala Arg
50 65 70 75 80

Glu Gly Gly Phe Leu Ser His Cys Ala Gly Phe Asp Ala Glu Phe Phe
85 90 95

55 Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu
100 105 110

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	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Leu	Glu	Arg	Ala	Gly	Val	Thr	Ala	
			115					120					125				
5	Asp	Arg	Ala	Arg	Gly	Ser	Arg	Thr	Gly	Val	Tyr	Ala	Gly	Val	Met	Tyr	
		130					135					140					
	Asp	Asp	Tyr	Gly	Ala	Arg	Val	Leu	Tyr	Gly	Ala	Gly	Ala	Gly	Pro	Pro	
	145					150					155				160		
10	Glu	Asp	Leu	Glu	Gly	Tyr	Leu	Val	Asn	Gly	Ser	Ala	Gly	Ser	Ile	Ala	
				165						170					175		
	Ser	Gly	Arg	Val	Ser	Tyr	Thr	Phe	Gly	Leu	Arg	Gly	Pro	Ala	Val	Thr	
			180						185					190			
15	Val	Asn	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ser	Leu	His	Leu	Ala	Val	
			195					200					205				
	Arg	Ala	Leu	Arg	Asn	Gly	Glu	Cys	Asp	Met	Ala	Leu	Ala	Gly	Gly	Ala	
	210						215					220					
20	Thr	Val	Leu	Ser	Thr	Pro	Thr	Val	Leu	Val	Asp	Phe	Ser	Arg	Gln	Arg	
	225					230					235					240	
	Gly	Leu	Ala	Pro	Asp	Gly	Arg	Cys	Lys	Ala	Phe	Ala	Asp	Ser	Ala	Asp	
				245						250					255		
25	Gly	Thr	Ser	Trp	Ala	Glu	Gly	Ala	Gly	Met	Leu	Leu	Leu	Gln	Arg	Leu	
				260					265					270			
	Ser	Asp	Ala	Arg	Arg	Glu	Gly	Arg	Pro	Val	Leu	Ala	Val	Ile	Arg	Gly	
30			275					280						285			
	Ser	Ala	Val	Asn	Gln	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	Asn	
		290					295					300					
	Gly	Arg	Ala	Gln	Arg	Gln	Val	Ile	Glu	Asp	Ala	Leu	Arg	Asp	Ala	Gly	
35	305					310					315					320	
	Val	Gly	Pro	Asp	Gln	Val	Asp	Ala	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	
				325						330					335		
40	Glu	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Gly	Ala	Leu	Leu	Ala	Thr	Tyr	Gly	
				340					345					350			
	Thr	Ala	Arg	Thr	Ala	Glu	Arg	Pro	Leu	Trp	Leu	Gly	Ser	Leu	Lys	Ser	
			355					360					365				
45	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Val	Ala	Gly	Val	Ile	Lys	
		370					375					380					
	Met	Val	Leu	Ala	Met	Arg	His	Gly	Arg	Leu	Pro	Arg	Thr	Leu	His	Val	
	385					390					395					400	
50	Asp	Arg	Pro	Thr	Thr	Arg	Val	Asp	Trp	Glu	Lys	Gly	Gly	Val	Arg	Leu	
				405						410					415		
	Leu	Thr	Glu	Pro	Val	Pro	Trp	Pro	Gly	Glu	Ala	Gly	Glu	Pro	Arg	Arg	
55				420					425					430			

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	Ala Gly Val Ser Ser Phe Gly Ala Ser Gly Thr Asn Ala His Val Val	
	435 440 445	
5	Leu Glu Ser Val Pro Ala Gly Glu Pro Pro Ala Ala Gly Arg Pro Glu	
	450 455 460	
	Asp Thr Gly Gly Ala Trp Thr Val Ser Gly Arg Gly Pro Ala Ala Leu	
	465 470 475 480	
10	Arg Ala Gln Ala Ala Arg Leu Tyr Asp Ala Leu Thr Gly Thr Gly Thr	
	485 490 495	
	Gly Thr Gly Gln Gly Ala Gly Gln Gly Ala Gly Pro Gly Thr Ala Glu	
	500 505 510	
15	Val Ala Gly Ala Leu Ala His Ala Arg Thr Ala Phe Arg His Arg Ala	
	515 520 525	
	Val Val Leu Gly Gly Asn Arg Ala Glu Leu Leu Ala Gly Leu Arg Glu	
	530 535 540	
20	Leu Ala Glu Glu Glu His Pro Gly Pro Arg Val Val Thr Gly Thr Ala	
	545 550 555 560	
	Pro Ala Thr Glu Arg Arg Thr Ala Phe Leu Phe Ser Gly Gln Gly Ser	
	565 570 575	
25	Gln Arg Ala Gly Ser Gly Arg Gly Leu Tyr Arg Arg His Pro Val Phe	
	580 585 590	
	Ala Arg Ala Leu Asp Glu Val Cys Ala Ala Leu Glu Pro His Leu His	
	595 600 605	
30	Arg Pro Leu Arg Asp Leu Met Phe Ala Glu Pro Gly Ser Pro Glu Ala	
	610 615 620	
	Glu Pro Leu Asp Arg Thr Glu Phe Thr Gln Pro Ala Leu Phe Ala Leu	
	625 630 635 640	
	Gln Thr Ala Leu Phe Arg Leu Ala Glu His His Gly Leu Arg Ala Glu	
	645 650 655	
40	Ala Leu Cys Gly His Ser Val Gly Glu Ile Ala Ala Ala His Ala Ala	
	660 665 670	
	Gly Val Leu Thr Leu Pro Asp Ala Ala Arg Leu Val Ala Ala Arg Gly	
	675 680 685	
45	Arg Leu Met Gln Ala Leu Pro Ala Gly Gly Ala Met Ala Ala Leu Arg	
	690 695 700	
	Ala Thr Ala Glu Glu Ile Ala Pro Leu Leu Glu Arg Arg Ala Gly Glu	
	705 710 715 720	
50	Leu Ala Leu Ala Ala Val Asn Gly Pro Ser Ser Val Val Val Ser Gly	
	725 730 735	
	Asp Glu Ala Ala Val Leu Glu Leu Leu Glu Gln Trp Arg Ala Glu Gly	
	740 745 750	
55		

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	Arg	Glu	Ala	Arg	Arg	Leu	Ala	Val	Ser	His	Ala	Phe	His	Ser	Pro	Arg	
			755					760					765				
5	Met	Asp	Gly	Met	Leu	Thr	Gln	Phe	Asp	Arg	Val	Ala	Arg	Thr	Leu	Thr	
		770					775					780					
	Phe	Ala	Pro	Pro	Thr	Ile	Pro	Leu	Val	Ser	Thr	Leu	Thr	Gly	Thr	Pro	
	785					790					795					800	
10	Val	Thr	Glu	Glu	Thr	Leu	Cys	Thr	Ala	Asp	His	Trp	Val	Arg	Gln	Ala	
					805					810					815		
	Arg	Glu	Pro	Val	Arg	Phe	Leu	Asp	Ala	Met	Arg	Thr	Leu	Arg	Ala	Asp	
				820					825						830		
15	Gly	Ile	Asp	Thr	Phe	Val	Glu	Leu	Gly	Pro	Asp	Gly	Val	Leu	Ser	Ala	
			835					840					845				
	Met	Ala	Arg	Asp	Cys	Ala	Asp	Asp	Arg	Pro	Asp	Gly	Asp	Thr	Thr	Gly	
		850					855					860					
20	Ala	Gly	Asp	Gly	Glu	Thr	Pro	Asp	Pro	Leu	Leu	Thr	Leu	Pro	Leu	Leu	
	865					870					875					880	
	Arg	Arg	Ser	Val	Pro	Glu	Thr	Gly	Asp	Ala	Glu	His	Pro	Gly	Gly	Phe	
					885					890					895		
25	Glu	Arg	Ala	Leu	Ala	Thr	Ala	Tyr	Ala	His	Gly	Val	Pro	Leu	Arg	Leu	
				900					905					910			
	Ala	Pro	Ala	Pro	Asp	Ala	Ala	Ser	Leu	Ala	Val	Ala	Ala	Glu	Leu	Pro	
30			915					920					925				
	Thr	Tyr	Ala	Phe	Gln	Arg	Thr	His	Tyr	Trp	Leu	Asp	Ala	Pro	Ala	Ala	
	930						935					940					
	Pro	Ala	Ala	Leu	Pro	Ala	Gly	Leu	Asp	Asp	Ala	Gly	His	Pro	Leu	Leu	
35	945					950					955					960	
	Ser	Ala	Ala	Leu	Asp	Leu	Pro	Gly	Gly	Arg	Gly	Thr	Val	Trp	Thr	Gly	
				965						970					975		
40	Ala	Leu	Ser	Ala	Ala	Thr	Leu	Pro	Trp	Ala	Ala	Asp	His	Ser	Val	His	
				980					985					990			
	Gly	Arg	Thr	Val	Leu	Pro	Gly	Thr	Ala	Leu	Leu	Asp	Leu	Ala	Leu	His	
		995						1000					1005				
45	Ala	Ala	Pro	Arg	Val	Gly	Glu	Leu	Thr	Phe	Glu	Ala	Pro	Leu	Val	Leu	
		1010					1015					1020					
	Pro	Glu	Asp	Gly	Glu	Val	Arg	Leu	Arg	Val	Val	Leu	Ala	Glu	Pro	Asp	
50	1025					1030					1035					1040	
	Ala	Ser	Gly	Val	Arg	Glu	Leu	Ser	Val	His	Ser	Ala	Gly	Glu	Asp	Gly	
					1045					1050					1055		
	Gly	Trp	Thr	Arg	His	Ala	Thr	Ala	Val	Leu	Asp	Thr	Gly	Thr	Thr	Thr	
55				1060					1065					1070			

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	Ala Gly Glu Pro Ala Gly Ala Pro Pro Ala Ala Trp Pro Pro Gly Asp	
	1075	1080 1085
5	Ala Glu Pro Leu Asp Leu Ala Ala Glu Tyr Glu Arg Phe Ala Asp Ala	
	1090	1095 1100
	Gly Ile Gly Tyr Gly Pro Ala Phe Arg Gly Leu Arg Ser Ala Trp Arg	
	1105	1110 1115 1120
10	Asp Gly Asp Ala Ile Leu Ala Asp Val Arg Leu Pro Gly Glu Leu Ala	
	1125	1130 1135
	Gly Glu Ala Asp Arg Tyr Gly Ile His Pro Ala Leu Leu Asp Ala Ala	
	1140	1145 1150
15	Leu His Thr Ala Ala Ala Ala Leu Gly Gly Ala His Gly Met Leu Pro	
	1155	1160 1165
	Phe Thr Trp Asn Gly Val Thr Leu His Ala Arg Gly Ala His Ala Ile	
	1170	1175 1180
20	Arg Val Arg Leu Thr Pro Ala Gly Pro Asp Ala Val Ala Val Thr Ala	
	1185	1190 1195 1200
	Val Asp Pro Ala Gly Arg Pro Val Phe Thr Ala Ala Ser Leu Thr Leu	
	1205	1210 1215
25	Arg Pro Val Thr Thr Gly Gln Leu Thr Ala Ala Glu Ala Ala Arg Ala	
	1220	1225 1230
	Pro Leu Tyr Arg Val Arg Trp Thr Gly Leu Pro Asp Thr Gly Thr Ala	
	1235	1240 1245
30	Arg Asp His Thr Trp Ala Val Ala Gly Gly Pro Gly Asp Leu Leu Pro	
	1250	1255 1260
	Gly Glu Thr Pro His His Pro Asp Leu Ala Ser Ala Leu Ala Asp Thr	
	1265	1270 1275 1280
	Gly Thr Ala Pro Phe Arg Val Leu Ala Asp Leu Arg Gly Tyr Gly Thr	
	1285	1290 1295
40	Ala Thr Pro Arg Glu Leu Ala Ser Gln Ala Leu Ala Leu Val Gln Gln	
	1300	1305 1310
	Trp Ala Asp Ala Ala Glu Ala Ala Glu Gly Arg Leu Val Leu Val Thr	
	1315	1320 1325
45	Arg Arg Ala Val Asp Ile Gly Asp Gly Val Thr Asp Pro Ala Ala Ala	
	1330	1335 1340
	Thr Val Trp Gly Leu Val Arg Ala Ala Gln Ser Glu His Pro Gly Cys	
	1345	1350 1355 1360
50	Phe Ala Leu Leu Asp Thr Asp Asp Ser Pro Arg Ser Arg Gln Leu Leu	
	1365	1370 1375
	Pro Arg Val Ala Gly Thr Ala Glu Gln Leu Ala Leu Arg Asp Gly Thr	
	1380	1385 1390
55		

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	Leu	Leu	Ala	Pro	Ser	Leu	Thr	Arg	Ala	Thr	Leu	Pro	Ala	Gly	Ala	Arg	
				1395				1400					1405				
5	Leu	Pro	Ala	Leu	Asp	Gly	Thr	Val	Leu	Ile	Thr	Gly	Gly	Thr	Gly	Ser	
			1410				1415					1420					
	Leu	Gly	Ala	Glu	Ala	Ala	Arg	His	Leu	Val	Thr	Arg	His	Gly	Ala	Arg	
		1425			1430						1435					1440	
10	Arg	Leu	Leu	Leu	Thr	Ser	Arg	Ser	Gly	Pro	Gln	Ala	Pro	Gly	Ala	Ala	
					1445					1450					1455		
	Glu	Leu	Val	Ala	Glu	Leu	Ala	Ala	Leu	Gly	Ala	His	Ala	Asp	Val	Ala	
				1460					1465					1470			
15	Ala	Cys	Asp	Val	Ala	Asp	Arg	Ala	Ala	Leu	Arg	Ala	Leu	Leu	Asp	Arg	
			1475				1480						1485				
	Val	Pro	Ala	Gly	His	Pro	Leu	Thr	Ala	Val	Leu	His	Thr	Ala	Gly	Val	
			1490				1495						1500				
20	Leu	Asp	Asp	Gly	Val	Leu	Thr	Ala	Gln	Thr	Pro	Gln	Arg	Leu	Ala	Ala	
		1505				1510					1515					1520	
	Val	Leu	Arg	Pro	Lys	Ala	Asp	Ala	Val	Arg	Asn	Leu	His	Glu	Leu	Thr	
				1525						1530						1535	
25	Gln	Gly	His	Ala	Leu	Ser	Ala	Phe	Ile	Leu	Tyr	Ser	Ser	Ala	Ala	Gly	
				1540					1545					1550			
	Val	Leu	Gly	Ser	Ala	Gly	Gln	Ser	Gly	Tyr	Ala	Ala	Ala	Asn	Ala	Tyr	
30			1555				1560						1565				
	Leu	Asp	Ser	Phe	Ala	Val	Trp	Arg	Arg	Ser	Arg	Gly	Leu	Pro	Ala	Val	
		1570					1575					1580					
35	Ser	Leu	Gly	Trp	Gly	Pro	Trp	Asp	Gly	Gly	Gly	Met	Ala	Ser	Gly	Leu	
		1585				1590					1595					1600	
	Gly	Gly	Thr	Asp	Thr	Ala	Arg	Leu	Arg	Arg	Ser	Gly	Ile	Ala	Pro	Leu	
				1605						1610					1615		
40	Ser	Arg	Ala	Glu	Gly	Leu	Ala	Ala	Leu	Asp	Ala	Ala	Leu	Ala	Ala	Gly	
				1620					1625					1630			
	Gly	Asp	Asp	Thr	Ala	Pro	Ala	His	Leu	Leu	Pro	Ile	Arg	Val	Asp	Ala	
			1635					1640					1645				
45	Val	Thr	Leu	Arg	Gly	Ala	Asp	Thr	Val	Pro	Ala	Val	Leu	Arg	Asp	Leu	
			1650				1655					1660					
	Ala	Gly	Thr	Ala	Pro	Ser	Ala	Ala	Glu	Arg	Pro	Pro	Gly	Thr	Pro	Glu	
50						1670					1675					1680	
	Asp	Thr	Asn	Ala	Pro	Leu	Ala	Asp	Val	Thr	Gln	Leu	His	Gly	Arg	Glu	
				1685						1690					1695		
55	Arg	Lys	Glu	Ala	Leu	Thr	Gly	Phe	Val	Arg	Ala	Gln	Val	Ala	Ala	Val	
				1700					1705					1710			

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Leu Gly His Pro Thr Ser Asp Thr Ile Asp Val Arg Arg Ser Phe Lys
 1715 1720 1725

5 Glu Ala Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg Asn Arg Leu
 1730 1735 1740

Arg Ala Ala Thr Gly Leu Lys Leu Pro Ala Thr Leu Val Phe Asp His
 1745 1750 1755 1760

10 Pro Thr Pro Leu Ala Leu Ala Gly Phe Leu His Arg Glu Leu Pro Gly
 1765 1770 1775

Ala Glu Ala Ser Leu Met Ser Ala Ile Asp Thr Leu Arg His Arg Leu
 1780 1785 1790

15 Arg Asp Ala Leu Ala Asp Asp Ala Ala Asp Asp Ala Leu Arg Asp Gln
 1795 1800 1805

Ile Thr Arg Arg Leu Glu Thr Leu Leu Ala Gly Ile Ala Arg Thr Glu
 1810 1815 1820

20 Glu Pro Ala Pro Ala Thr Ala Ala Ala Asp Asp Gly Ser Gly Ala Gly
 1825 1830 1835 1840

Asp Val Ala Glu Arg Leu Ser Thr Ala Ser Asp Asp Glu Leu Phe Glu
 1845 1850 1855

25 Leu Leu Asp Ser Gly Phe Thr Pro *

1860 1865

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3730 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

40 Met Ser Thr Glu Asn Ser Thr Asn Val Pro Ala Ser Glu Asp Lys Leu
 1 5 10 15

Arg Ala Tyr Leu Arg Arg Ala Met Ala Asp Leu His Glu Ser Arg Glu
 20 25 30

45 Arg Leu Arg Ala Thr Glu Ala Arg Ala Gln Glu Pro Ile Ala Val Val
 35 40 45

50 Gly Met Gly Cys Arg Phe Pro Gly Gly Val Gly Ser Pro Glu Ala Leu
 50 55 60

Trp Arg Leu Val Val Glu Gly Val Asp Ala Val Ser Pro Phe Pro Gly
 65 70 75 80

55 Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Glu Pro Gly Val
 85 90 95

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	Ala Gly Lys Ser Tyr Val Arg Glu Gly Gly Phe Leu His Asp Ala Ala	100	105	110
5	Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala Val Ala	115	120	125
	Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Ile	130	135	140
10	Glu Arg Ala Gly Ile Asp Pro His Ser Leu His Gly Ser Arg Thr Gly	145	150	155
	Val Tyr Ala Gly Val Met Tyr His Asp Tyr Gly Thr Gly Gln Thr Ser	165	170	175
15	Ala Thr Asp Thr Ser Gly Tyr Ser Gly Thr Gly Thr Ser Gly Ser Val	180	185	190
	Val Ser Gly Arg Val Ala Tyr Thr Leu Gly Leu Glu Gly Pro Ala Val	195	200	205
20	Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu Ala	210	215	220
	Val Gln Ala Leu Arg Gly Gly Glu Cys Asp Met Ala Leu Ala Gly Gly	225	230	235
25	Val Thr Val Met Ala Gly Pro Gly Met Phe Val Glu Phe Ser Arg Gln	245	250	255
	Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ala Asp Gly Ala	260	265	270
30	Asp Gly Thr Ala Trp Ala Glu Gly Ala Gly Val Val Leu Val Glu Arg	275	280	285
	Leu Ser Asp Ala Arg Arg Leu Gly His Pro Val Leu Ala Val Val Cys	290	295	300
35	Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro	305	310	315
40	Ser Gly Pro Ser Gln Glu Arg Val Ile Arg Gln Ala Leu Ala Asn Ala	325	330	335
	Arg Leu Thr Val Ala Asp Val Asp Val Val Glu Ala His Gly Thr Gly	340	345	350
45	Thr Arg Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Gly Thr Tyr	355	360	365
	Gly Arg Asp Arg Asp Gly Gly Arg Pro Val Trp Leu Gly Ser Leu Lys	370	375	380
50	Ser Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Ala Gly Val Ile	385	390	395
	Lys Met Val Leu Ala Met Arg Tyr Gly Trp Leu Pro Arg Thr Leu His	405	410	415
55				

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	Val Asp Glu Pro Ser Arg His Val Asp Trp Ser Ala Gly Gly Val Trp	
	420	425 430
5	Leu Leu Thr Glu Ala Arg Glu Trp Pro Gly Val Asp Arg Pro Arg Arg	
	435	440 445
	Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn Ala His Leu Ile	
	450	455 460
10	Leu Glu Ala Pro Asp Thr Ala Glu Ala Glu Ser Ala Thr Thr Pro Val	
	465	470 475 480
	Arg Ser Glu Val Ser Glu Ser Ala Ala Val Phe Asp Ala Arg Ser Gly	
	485	490 495
15	Val Val Pro Val Val Val Ser Gly Arg Ser Arg Val Val Val Arg Glu	
	500	505 510
	Ala Ala Gly Arg Leu Ala Glu Val Val Glu Ala Gly Gly Val Gly Leu	
20	515	520 525
	Ala Asp Val Ala Val Thr Met Ala Gly Arg Ser Arg Phe Gly Tyr Arg	
	530	535 540
25	Ala Val Val Leu Ala Arg Gly Glu Ala Glu Leu Ala Gly Arg Leu Arg	
	545	550 555 560
	Ala Leu Ala Gly Gly Asp Pro Asp Ala Gly Val Val Thr Gly Ala Val	
	565	570 575
30	Val Asp Pro Glu Thr Gly Ser Gly Gly Gly Gly Val Val Leu Val Phe	
	580	585 590
	Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala Gly Leu Leu Gly	
	595	600 605
35	Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys Ala Arg Ala Leu	
	610	615 620
	Ser Val His Val Gly Trp Asp Leu Leu Glu Val Val Ser Gly Gly Ala	
	625	630 635 640
40	Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Trp Ala Val Met	
	645	650 655
	Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val Asp Val Ala Ala	
45	660	665 670
	Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Thr Val Ala Gly	
	675	680 685
50	Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala Leu Arg Ala Gly	
	690	695 700
	Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met Ala Ala Val Pro	
	705	710 715 720
55	Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys Trp Pro Gly Val	
	725	730 735

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	Glu Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val Val Ser Gly Asp	
	740 745 750	
5	Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln Ala Glu Gly Val	
	755 760 765	
	Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His Ser Arg His Val	
	770 775 780	
10	Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser Gly Ile Arg Pro	
	785 790 795 800	
	Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala Gly Glu Gln Pro	
	805 810 815	
15	Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn Leu Arg Asn	
	820 825 830	
	Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu Glu Gly His	
	835 840 845	
20	Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu Val His Ala Ile	
	850 855 860	
	Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala Thr Gly Thr	
	865 870 875 880	
25	Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr Ser Thr Ala	
	885 890 895	
	Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro Ala Leu Pro	
	900 905 910	
30	Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn His His His	
	915 920 925	
35	Tyr Trp Leu Asp Thr Thr Pro Thr Thr Pro Ala Thr Thr Thr Gln Ser	
	930 935 940	
	Pro Thr Asp Ala Gln Asn Pro Ala Asp Ala Leu Pro Tyr Lys Val Ser	
	945 950 955 960	
40	Trp Lys Arg Leu Arg Asp Gln Asp Ser Leu Thr Ala Arg Leu Asp Gly	
	965 970 975	
	Arg Trp Leu Leu Val Val Pro Glu Ala Ser Ala Asp Pro Ser Val Ala	
	980 985 990	
45	Glu Gly Val Ala Arg Glu Leu Thr Ala Arg Gly Ala Thr Val Glu Ser	
	995 1000 1005	
	Leu Thr Val Glu Pro Gly Ala Asp Arg Ser Arg Leu Arg Gly Leu Leu	
	1010 1015 1020	
50	Val Asp Ala Thr Glu Arg Asp Glu Ala Gly Pro Leu Arg Gly Ile Val	
	1025 1030 1035 1040	
55	Ser Leu Leu Ala Leu Ala Gly Asp His Ala Gly Ala Asp Gly Ala Arg	
	1045 1050 1055	

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Pro Val Val Pro Ala Gly Leu Ala Ala Ser Leu Ala Leu Ile Gln Ala
1060 1065 1070

5 Ala Gly Asp Ala Gly Thr Glu Ala Gly Leu Trp Ala Val Thr Arg Gly
1075 1080 1085

Ala Val Ala Ala Val Pro Gly Asp Val Pro Ala Pro Ser Gln Ala Leu
1090 1095 1100

10 Leu Trp Gly Phe Gly Arg Val Ala Gly Ile Glu Leu Pro His Cys Trp
1105 1110 1115 1120

Gly Gly Leu Leu Asp Leu Pro Thr Gly Pro Gly Asp Ser Gly Phe Arg
1125 1130 1135

15 Gln Leu Ala Ala Thr Leu Ala Gly Arg Pro Ala Glu Asp Gln Val Ala
1140 1145 1150

Leu Arg Ala Ser Gly Ala Tyr Gly Arg Arg Leu Val Arg Ala Ser Ala
1155 1160 1165

20 Ala Gly Gly Ala Asp Gly Trp Arg Pro Arg Gly Thr Val Leu Val Val
1170 1175 1180

Gly Asp Thr Ala Glu Val Ala Gly Pro Leu Val Arg Trp Leu Leu Gly
1185 1190 1195 1200

25 Asn Gly Ala Arg Arg Val Thr Leu Ser Gly Leu Ser Gly Pro Leu Pro
1205 1210 1215

Glu Glu Leu Ala Asp Val Ala Ala Arg Val Thr Val Ala Pro Cys Asp
1220 1225 1230

30 Pro Ala Asp Arg Pro Ala Leu Arg Thr Leu Leu Ala Glu Gln Ala Pro
1235 1240 1245

35 Thr Ala Val Leu Val Ala Pro Pro Ala Val Pro Pro Thr Pro Leu Ala
1250 1255 1260

Glu Met Thr Ala Glu Ala Leu Ala Ile Ala Leu Ser Ala Lys Thr Gly
1265 1270 1275 1280

40 Leu Val Asp Arg Leu Asp Ser Leu Leu Asp Glu Pro Asp Pro Leu Leu
1285 1290 1295

Glu Asp Gly Glu Leu Asp Ala Phe Val Val Phe Ser Ser Val Ala Gly
1300 1305 1310

45 Val Trp Gly Gly Ala Gly Gln Gly Gly Tyr Ala Ala Gly Thr Ala Tyr
1315 1320 1325

Leu Asp Ala Leu Ala Glu Cys Arg Arg Ala Gly Gly Leu Pro Val Thr
1330 1335 1340

50 Ser Val Ala Trp Thr Pro Trp Leu Gly Thr Pro Ala Ala Asp Ser Leu
1345 1350 1355 1360

55 Gly Glu Gln Met Ser Arg Ala Gly Ile Thr Pro Leu Asp Pro Ala Ala
1365 1370 1375

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Ser Leu Asp Ala Leu Ala Arg Ala Val Gly Arg Arg Ala Gly Cys Val
 1380 1385 1390
 5 Thr Val Ala Asp Ile Asp Trp Glu Arg Phe Ala Ser Ala Tyr Thr Ala
 1395 1400 1405
 Thr Arg Pro Thr Pro Met Phe Asp Glu Val Pro Glu Val Arg Arg Ile
 1410 1415 1420
 10 Gln Ala Ala Trp Ala Glu Ala Glu Ala Asp Ala Ala Arg Ser Gly Ala
 1425 1430 1435 1440
 Gly Gly Asp Ser Gln Leu Leu Arg Ser Leu Arg Gly Arg Pro Glu Glu
 1445 1450 1455
 15 Ala Gln Leu Ala Glu Leu Leu Arg Leu Val Arg Thr His Ala Ala Ala
 1460 1465 1470
 Val Leu Gly Leu Gly Ser Pro Gly Ala Val Glu Ala Arg Arg Ser Phe
 1475 1480 1485
 20 Lys Asp Leu Gly Phe Asn Ser Val Thr Ala Val Glu Leu Arg Asn Arg
 1490 1495 1500
 Leu Lys Glu Ala Thr Gly Leu Arg Leu Glu Val Ser Leu Val Phe Asp
 1505 1510 1515 1520
 25 His Pro Asp Pro Ala Ser Leu Ala Arg His Leu Leu Asp Leu Ala Leu
 1525 1530 1535
 30 Gly Gln Glu Pro Glu Glu Thr Pro Arg Ala Phe Ala Leu Glu Pro Ala
 1540 1545 1550
 Pro Asn Gly Glu Pro Ile Ala Ile Val Ser Met Ala Cys Arg Met Pro
 1555 1560 1565
 35 Gly Gly Val Ser Thr Pro Glu Glu Leu Trp Arg Leu Leu Arg Asp Gly
 1570 1575 1580
 Lys Asp Ala Ile Gly Pro Phe Pro Ala Asn Arg Gly Trp Asp Leu Glu
 1585 1590 1595 1600
 40 Asn Leu Tyr Asp Pro Asp Pro Asp Ala Asp Gly Arg Thr Tyr Val Arg
 1605 1610 1615
 Glu Gly Gly Phe Leu His Glu Ala Pro Asp Phe Asp Pro Ser Phe Phe
 1620 1625 1630
 45 Gly Ile Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu
 1635 1640 1645
 Leu Leu Glu Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile Asp Pro
 1650 1655 1660
 50 Ala Arg Leu Arg Gly Ser Arg Thr Gly Val Phe Val Gly Thr Asn Gly
 1665 1670 1675 1680
 55 Gln His Tyr Met Pro Leu Leu Gln Asn Gly Gly Asp Ser Phe Asp Gly
 1685 1690 1695

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Tyr Leu Gly Thr Gly Asn Ser Ala Ser Val Met Ser Gly Arg Leu Ser
 1700 1705 1710
 5 Tyr Val Phe Gly Leu Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys
 1715 1720 1725
 Ser Ala Ser Leu Val Ala Leu His Leu Ala Val Gln Ala Met Arg Arg
 1730 1735 1740
 10 Gly Glu Cys Asp Met Ala Leu Val Gly Gly Ala Thr Val Met Ser Thr
 1745 1750 1755 1760
 Pro Glu Met Leu Val Glu Phe Ser Arg Gln Arg Val Ile Ser Ala Asn
 1765 1770 1775
 15 Gly Arg Ser Arg Ala Phe Ala Ala Gly Ala Asp Gly Val Ala Leu Gly
 1780 1785 1790
 Glu Gly Val Gly Val Leu Leu Val Glu Arg Leu Ser Asp Ala Glu Arg
 1795 1800 1805
 20 Asn Gly His Pro Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln
 1810 1815 1820
 Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln
 1825 1830 1835 1840
 25 Arg Val Ile Arg Gln Ala Leu Ala Asp Ala Gly Leu Arg Pro Glu Asp
 1845 1850 1855
 Ile Asp Ala Val Glu Ala His Gly Thr Gly Thr Glu Leu Gly Asp Pro
 1860 1865 1870
 30 Ile Glu Ala Glu Ala Leu Leu Ala Thr Tyr Gly Arg Thr Arg Thr Ala
 1875 1880 1885
 35 Asp Arg Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Thr
 1890 1895 1900
 Gln Ala Ala Ala Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Leu
 1905 1910 1915 1920
 40 Gly Asn Glu Thr Leu Pro Arg Thr Leu His Val Asp Glu Pro Thr Pro
 1925 1930 1935
 Arg Val Asp Trp Ser Ser Gly Ala Val Ser Leu Leu Thr Glu Pro Val
 1940 1945 1950
 45 Asp Trp Pro Ala Gly Pro Ser Ala Pro Arg Arg Ala Ala Val Ser Ser
 1955 1960 1965
 Phe Gly Ile Ser Gly Thr Asn Ala His Thr Ile Leu Glu Gln Ala Pro
 1970 1975 1980
 50 Val Pro Ala Glu Ser Arg Pro Gly Thr Glu Pro Ala Asp Gly Thr Gly
 1985 1990 1995 2000
 55 Ala Trp Glu Asn Val Thr Val Pro Leu Leu Leu Ser Gly His Thr Glu
 2005 2010 2015

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Ala Ala Leu Arg Glu Gln Ser Thr Arg Leu Leu Asn Asp Leu Leu Glu
2020 2025 2030

5 His Pro Asp Glu His Pro Ala Asp Val Gly Tyr Thr Leu Ile Thr Gly
2035 2040 2045

Arg Ala His Phe Gly His Arg Ala Ala Val Ile Gly Glu Ser Arg Glu
2050 2055 2060

10 Glu Leu Leu Asp Ala Leu Lys Ala Leu Ala Glu Gly Arg Glu His His
2065 2070 2075 2080

Thr Val Val Arg Gly Asp Gly Thr Ala His Pro Asp Arg Arg Val Val
2085 2090 2095

15 Phe Val Phe Pro Gly Gln Gly Ser Gln Trp Pro Ser Met Ala Arg Asp
2100 2105 2110

Leu Leu Asp Arg Ala Pro Ala Phe Arg Glu Thr Ala Lys Ala Cys Asp
2115 2120 2125

20 Ala Ala Leu Ser Val His Leu Asp Trp Ser Val Leu Asp Val Leu Gln
2130 2135 2140

Glu Lys Pro Asp Ala Pro Pro Leu Ser Arg Val Asp Val Val Gln Pro
2145 2150 2155 2160

25 Val Leu Phe Thr Met Met Leu Ser Leu Ala Ala Cys Trp Arg Asp Leu
2165 2170 2175

Gly Val His Pro Ala Ala Val Val Gly His Ser Gln Gly Glu Ile Ala
2180 2185 2190

Ala Ala Cys Val Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala Arg Ile
2195 2200 2205

35 Val Ala Leu Arg Ser Arg Ala Trp Leu Thr Leu Ala Gly Lys Gly Gly
2210 2215 2220

Met Ala Ala Val Ser Leu Pro Glu Ala Arg Leu Arg Glu Arg Ile Glu
2225 2230 2235 2240

40 Arg Phe Gly Gln Arg Leu Ser Val Ala Ala Val Asn Ser Pro Gly Thr
2245 2250 2255

Ala Ala Val Ala Gly Asp Val Asp Ala Leu Arg Glu Leu Leu Ala Glu
2260 2265 2270

45 Leu Thr Ala Glu Gly Ile Arg Ala Lys Pro Ile Pro Gly Val Asp Thr
2275 2280 2285

Ala Gly His Ser Ala Gln Val Asp Gly Leu Lys Glu His Leu Phe Glu
2290 2295 2300

50 Val Leu Ala Pro Val Ser Pro Arg Ser Ser Asp Ile Pro Phe Tyr Ser
2305 2310 2315 2320

Thr Val Thr Gly Ala Pro Leu Asp Thr Glu Arg Leu Asp Ala Gly Tyr
2325 2330 2335

55

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Trp Tyr Arg Asn Met Arg Glu Pro Val Glu Phe Glu Lys Ala Val Arg
2340 2345 2350

5 Ala Leu Ile Ala Asp Gly Tyr Asp Leu Phe Leu Glu Cys Asn Pro His
2355 2360 2365

Pro Met Leu Ala Met Ser Leu Asp Glu Thr Leu Thr Asp Ser Gly Gly
2370 2375 2380

10 His Gly Thr Val Met His Thr Leu Arg Arg Gln Lys Gly Ser Ala Lys
2385 2390 2395 2400

Asp Phe Gly Met Ala Leu Cys Leu Ala Tyr Val Asn Gly Leu Glu Ile
2405 2410 2415

15 Asp Gly Glu Ala Leu Phe Gly Pro Asp Ser Arg Arg Val Asn Pro Pro
2420 2425 2430

Thr Tyr Pro Phe Gln Arg Glu Arg Tyr Trp Tyr His Pro Thr Ser Gly
2435 2440 2445

20 Arg Arg Gly Asp Ile Thr Ala Ala Gly Val Ala Glu Ala Glu His Pro
2450 2455 2460

Leu Leu Gly Ala Gly Val Glu Leu Pro Glu Thr Gly Gly Thr Val Tyr
2465 2470 2475 2480

25 Thr Ala Arg Phe Gly Pro Asp Ser Arg Pro Trp Leu Ala Asp His Ala
2485 2490 2495

30 Leu Leu Gly Thr Val Leu Leu Pro Gly Thr Ala Ile Leu Asp Leu Val
2500 2505 2510

Leu Trp Ala Gly Glu Arg Ser Gly Cys Gly Arg Val Gly Glu Leu Ala
2515 2520 2525

35 Leu Gln Ala Pro Leu Val Leu Pro Asp Ser Gly Asp Val Glu Leu Arg
2530 2535 2540

Leu Leu Val Gly Gly Pro Asp Glu Glu Lys Arg Arg Thr Val Thr Val
2545 2550 2555 2560

40 His Ala Arg Pro Ala Ala Ala Gly Ala Glu Ala Pro Trp Thr Arg His
2565 2570 2575

Ala Glu Ala Val Val Leu Pro Ala Thr Gly Glu Glu Pro Thr Pro Ala
2580 2585 2590

45 Pro Arg Pro Val Pro Glu Pro Ala Gly Thr Thr Asp Pro Ala Ala Phe
2595 2600 2605

Tyr Ala Glu Phe Ala Glu Arg Gly Tyr Asp Tyr Gly Pro Ala Phe Gln
2610 2615 2620

50 Gly Phe Thr Ala Gly Ala Arg His Gly Glu Asp Val Val Ala Glu Val
2625 2630 2635 2640

Ala Leu Pro Ser Gly Leu Val Ala Asp Ala Arg His His Arg Leu His
2645 2650 2655

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Pro Ala Leu Leu Asp Ala Ala Leu Gln Ala Met Ile Leu Gly Thr Phe
2660 2665 2670

5 Phe Ala Asp Asp Gly Arg Ala Arg Met Pro Phe Ala Val Arg Gly Val
2675 2680 2685

Arg Leu His Thr Ala Gly Ala Asp Arg Leu Arg Val Leu Ile Ser Pro
2690 2695 2700

10 Ala Gly Asp Glu Thr Val Arg Leu Leu Cys Thr Asp Leu Ala Thr Gly
2705 2710 2715 2720

Ala Pro Val Leu Glu Ile Asp Glu Leu Val Val Arg Pro Val Ser Gly
2725 2730 2735

15 Glu Gln Leu Ala Ala Gly Ala Pro Gly Arg Asn Gly Gly Glu Leu Tyr
2740 2745 2750

Arg Val Asp Trp Thr Val Leu Pro Glu Pro Ala Glu Val Pro Ala Pro
2755 2760 2765

20 Arg Trp Ala Leu Leu Gly Glu Asp His Ala Gly Leu Ala Asp Val Leu
2770 2775 2780

Gly Gly Thr Gly Gly Gly Cys Glu Arg Tyr Asp Thr Leu Thr Gly Leu
2785 2790 2795 2800

Leu Glu Ala Thr Thr Arg Ser Ala Gly Gly Ile Leu Pro Asp Ile Val
2805 2810 2815

30 Ala Leu Ser Leu Pro Thr Ala Pro Glu Pro Gly Pro Gln Ala Val Arg
2820 2825 2830

Glu Val Leu Ser Gln Ala Leu Asp Ala Ala Gln Ala Trp Leu Ala Ala
2835 2840 2845

35 Gly Ala Glu Thr Ala Ser Ala Arg Leu Val Phe Val Thr Gly Gly Ala
2850 2855 2860

Val Ala Thr Thr Ala Asp Glu Thr Val Arg Asp Ile Ala Ala Ala Ala
2865 2870 2875 2880

40 Val Trp Gly Leu Val Arg Ser Ala Gln Ser Glu Glu Pro Asp Arg Met
2885 2890 2895

Val Leu Leu Asp Leu Asp Gly Glu Arg Pro Thr Ala Arg Thr Leu Ala
2900 2905 2910

45 Ala Ala Leu Ala Ser Gly Glu Pro Gln Leu Ala Val Arg Gly Ser Thr
2915 2920 2925

Val Ala Ala Pro Arg Leu Ala Pro Ala Gly Pro Gly Pro Glu Asp Leu
2930 2935 2940

50 Val Pro Pro Ala Gly Thr Thr Ala Trp Arg Leu Thr Pro Gly Gly Gly
2945 2950 2955 2960

Thr Leu Glu Glu Leu Ser Leu Ala Pro Ala Pro Asp Ala Glu Glu Pro
2965 2970 2975

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Leu Ala Pro Gly Gln Val Arg Ile Ala Val Arg Ala Ala Gly Val Asn
2980 2985 2990

5 Phe Arg Asp Ala Leu Ile Ala Leu Gly Met Tyr Pro Gly Lys Gly Thr
2995 3000 3005

Met Gly Ala Glu Gly Ala Gly Val Val Val Glu Thr Ala Pro Asp Val
3010 3015 3020

10 Thr Gly Leu Ser Ala Gly Asp Arg Val Leu Gly Met Trp Asn Gly Gly
3025 3030 3035 3040

Phe Gly Pro Leu Val Val Ala Asp His Arg Met Val Ala Pro Ile Pro
3045 3050 3055

15 His Gly Trp Ser Tyr Ala Glu Ala Ala Ser Val Pro Ala Val Leu Leu
3060 3065 3070

Thr Ser Tyr Tyr Ala Leu Thr Arg Leu Ala Arg Ala Arg Thr Gly Gln
3075 3080 3085

20 Thr Val Leu Val His Ala Ala Ala Gly Gly Val Gly Met Ala Thr Leu
3090 3095 3100

Gln Leu Ala Arg His Leu Gly Leu Glu Val Tyr Ala Thr Ala Ser Thr
3105 3110 3115 3120

25 Gly Lys Trp Asp Ala Leu Gln Lys His Gly Ile Pro Asp Asp Arg Ile
3125 3130 3135

Ala Asp Ser Arg Thr Leu Asp Phe Ala Glu Arg Phe Leu Ser Arg Thr
3140 3145 3150

30 Gly Gly Arg Gly Val Asp Ile Val Leu Asn Ser Leu Ala Gly Glu Phe
3155 3160 3165

35 Val Asp Ala Ser Leu Arg Leu Leu Pro Arg Gly Gly His Phe Leu Glu
3170 3175 3180

Leu Gly Lys Ala Asp Val Arg Asp Pro Arg Arg Ile Ala Ala Ala His
3185 3190 3195 3200

40 Pro Gly Thr Asp Tyr Arg Ala Phe Asp Leu Val Gln Ala Gly Pro Asp
3205 3210 3215

Thr Val Gly Glu Met Leu Gly Glu Leu Leu Glu Leu Phe Ala Ala Gly
3220 3225 3230

45 Ala Leu Arg Pro Leu Pro Leu Thr Ala Tyr Gly Ile Arg Asp Ala Arg
3235 3240 3245

Thr Ala Leu Arg Thr Leu Ser Gln Ala Arg His Thr Gly Lys Leu Val
3250 3255 3260

50 Leu Thr Val Pro Ala Gly Phe Asp Thr His Arg Thr Val Leu Leu Thr
3265 3270 3275 3280

Gly Gly Thr Gly Thr Leu Gly Gln Thr Leu Ala Arg His Leu Val Asn
3285 3290 3295

55

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Arg His Gly Val Arg His Leu Leu Leu Ala Gly Arg Thr Gly Ala Ala
3300 3305 3310

5 Ala Glu Gly Val Ala Glu Leu Ile Gly Glu Leu Gly Glu Leu Gly Ala
3315 3320 3325

Glu Val Arg Val Ala Ala Cys Asp Ala Ala Asp Arg Gln Arg Leu Thr
3330 3335 3340

10 Glu Leu Leu Ala Gly Ile Pro Val Glu His Pro Leu Gly Ala Val Val
3345 3350 3355 3360

His Ala Ala Gly Thr Leu Asp Asp Gly Thr Ile Pro Ser Leu Thr Gly
3365 3370 3375

15 Glu Asn Ile Asp Asn Val Leu Arg Pro Lys Ala Asp Ala Val Leu Asn
3380 3385 3390

Leu His Glu Leu Thr Arg Asp Ala Asp Leu Ser Ala Phe Val Leu Tyr
3395 3400 3405

20 Ser Ser Ser Ser Ala Leu Leu Gly Ser Pro Gly Gln Gly Ala Tyr Ala
3410 3415 3420

Ala Ala Asn Ala Phe Leu Asp Gly Phe Ala Arg Tyr Arg Lys Gly Leu
3425 3430 3435 3440

Gly Leu Pro Ala Leu Ser Leu Ala Trp Gly Leu Trp Gly Ser Asn Ser
3445 3450 3455

30 Arg Met Ala Gly His Leu Asp Gln Ser Gly Met Gln Arg Arg Leu Asn
3460 3465 3470

Arg Ser Gly Ile Met Ala Leu Thr Asp Ala Glu Gly Leu Ala Leu Phe
3475 3480 3485

35 Asp Ala Ala Gln Asp Gly Gly Asp Ala Leu Leu Val Pro Met Arg Leu
3490 3495 3500

Asn Arg Thr Ala Leu Arg Ala Ser Gly Arg Ile Thr Pro Phe Leu Ser
3505 3510 3515 3520

40 Gly Leu Ala Gly Gly Gly Pro Ala Ala Gly Glu Arg Arg Pro Glu Val
3525 3530 3535

Ala Ala Val Ser Gly Thr Leu Ala Glu Arg Leu Thr Gly Leu Thr Ala
3540 3545 3550

45 Gln Glu Gly His Ala Leu Val Leu Ala Glu Ile Arg Ala His Ala Ala
3555 3560 3565

Ala Val Leu Gly His Gly Ser Asp Asp Ser Ile Pro Glu Asp Arg Ala
3570 3575 3580

50 Phe Lys Asp Leu Gly Phe Asp Ser Leu Thr Ala Val Glu Met Arg Asn
3585 3590 3595 3600

Arg Leu Ser Ala Ala Thr Gly Leu Arg Leu Pro Ala Thr Leu Val Phe
3605 3610 3615

55

Asp His Pro Thr Pro Gly Glu Leu Ala Gly His Leu Ser Ala Glu Leu
 3620 3625 3630
 5 Ser Ala Asp Asp Ala Pro Gly Ser Ala Ser Pro Leu Thr Glu Leu Asp
 3635 3640 3645
 Arg Phe Glu Ala Leu Phe Thr Ala Leu Ala Pro Gly Thr Thr Lys Asp
 3650 3655 3660
 10 Thr Pro Gly Gly Ala Gly Ala Leu Met Ile Asp Glu Ala Glu Arg Gln
 3665 3670 3675 3680
 Glu Ile Ala Gly Arg Leu Ala Ala Leu Ala Gly Leu Trp Asn Arg Leu
 3685 3690 3695
 15 His Gly Thr Thr Thr Ala Pro Glu Asp Gly Asp Thr Val Ala Asp Ala
 3700 3705 3710
 Leu Glu Ala Ala Asp Asp His Glu Ile Phe Ala Phe Leu Asp Glu Arg
 3715 3720 3725
 20 Phe *
 3730

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1612 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

35 Met Ala Asn Ala Asn Glu Gln Gln Leu Arg Ala Tyr Leu Lys Arg Ala
 1 5 10 15
 Thr Thr Glu Leu His Arg Thr Ser Glu Gln Leu Arg Glu Glu Arg Ala
 20 25 30
 40 Arg Ala His Glu Pro Ile Ala Val Val Gly Met Ala Cys Arg Tyr Pro
 35 40 45
 Gly Gly Ala Asn Thr Pro Glu Gln Phe Trp Glu Leu Leu Asp Thr Gly
 50 55 60
 45 Thr Asp Ala Ala Ala Pro Met Pro Ser Asp Arg Gly Trp Asp Thr His
 65 70 75 80
 Gly Leu Tyr Asp Pro Asp Pro Ala Ala Ala Gly Arg Thr Tyr Cys Arg
 85 90 95
 Glu Gly Gly Phe Leu His Asp Ala Gly Asp Phe Asp Ala Asp Phe Phe
 100 105 110
 55 Gly Ile Ser Pro Arg Glu Ala Val Ala Met Asp Pro Gln Gln Arg Leu
 115 120 125

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	Leu	Leu	Glu	Thr	Ser	Trp	Glu	Ala	Ile	Glu	Ala	Ala	Gly	Ile	Asp	Pro	
	130						135						140				
5	Arg	Gly	Leu	Arg	Gly	Ser	Arg	Thr	Gly	Val	Tyr	Val	Gly	Ala	Trp	Asp	
	145					150					155					160	
	Ser	Gly	Tyr	Thr	Gly	Gln	Ala	His	Ala	Pro	Ser	Ala	Glu	Leu	Glu	Ala	
					165					170					175		
10	Asp	Leu	Leu	Thr	Gly	Gly	Val	Val	Ser	Phe	Thr	Ser	Gly	Arg	Ile	Ala	
				180					185					190			
	Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	Leu	Thr	Val	Asp	Thr	Ala	Cys	
			195					200					205				
15	Ser	Ser	Ser	Leu	Val	Ala	Leu	His	Asn	Ala	Ala	Gln	Ala	Leu	Arg	Arg	
		210					215					220					
	Gly	Glu	Cys	Asp	Leu	Ala	Leu	Ala	Gly	Gly	Val	Thr	Val	Met	Ala	Thr	
20		225				230					235				240		
	Pro	Ala	Val	Phe	Val	Gln	Phe	Ala	Arg	Gln	Arg	Gly	Leu	Ala	Pro	Asp	
					245					250					255		
25	Gly	Arg	Cys	Lys	Ala	Phe	Ala	Asp	Ala	Ala	Asp	Gly	Phe	Gly	Pro	Ala	
				260					265					270			
	Glu	Gly	Val	Gly	Met	Val	Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg	
			275				280						285				
30	Leu	Gly	His	Pro	Val	Leu	Ala	Val	Val	Cys	Gly	Ser	Ala	Val	Asn	Gln	
		290					295					300					
	Asp	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	Ser	Gly	Pro	Ser	Gln	Glu	
		305				310					315					320	
35	Arg	Val	Ile	Arg	Gln	Ala	Leu	Gly	Asn	Ala	Arg	Leu	Thr	Val	Ala	Asp	
					325					330					335		
	Val	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Arg	Leu	Gly	Asp	Pro	
				340					345					350			
40	Ile	Glu	Ala	Gln	Ala	Leu	Leu	Gly	Thr	Tyr	Gly	Arg	Asp	Arg	Asp	Gly	
			355					360					365				
	Gly	Arg	Pro	Val	Trp	Leu	Gly	Ser	Leu	Lys	Ser	Asn	Ile	Gly	His	Ala	
45		370					375					380					
	Gln	Ala	Ala	Ala	Gly	Val	Ala	Gly	Val	Ile	Lys	Met	Val	Leu	Ala	Met	
		385				390					395				400		
	Arg	Tyr	Gly	Trp	Leu	Pro	Arg	Thr	Leu	His	Val	Asp	Glu	Pro	Ser	Arg	
50					405					410					415		
	His	Val	Asp	Trp	Ser	Ala	Gly	Gly	Val	Arg	Leu	Leu	Thr	Glu	Ala	Arg	
				420					425					430			
55	Glu	Trp	Pro	Gly	Val	Asp	Arg	Pro	Arg	Arg	Ala	Ala	Val	Ser	Ala	Phe	
			435					440					445				

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	Gly	Val	Ser	Gly	Thr	Asn	Ala	His	Leu	Ile	Leu	Glu	Ala	Pro	Asp	Thr	
	450						455					460					
5	Ala	Glu	Ala	Glu	Ser	Ala	Thr	Thr	Pro	Val	Arg	Ser	Glu	Val	Ser	Glu	
	465					470					475					480	
	Ser	Ala	Ala	Val	Leu	Asp	Ala	Arg	Ser	Gly	Val	Val	Pro	Val	Val	Val	
					485					490						495	
10	Ser	Gly	Arg	Ser	Arg	Val	Val	Val	Arg	Glu	Ala	Ala	Gly	Arg	Leu	Ala	
				500					505					510			
	Glu	Val	Val	Glu	Ala	Gly	Gly	Val	Gly	Leu	Ala	Asp	Val	Ala	Val	Thr	
				515				520					525				
15	Met	Ala	Gly	Arg	Ser	Arg	Phe	Gly	Tyr	Arg	Ala	Val	Val	Leu	Ala	Arg	
		530					535					540					
	Gly	Glu	Ala	Glu	Leu	Ala	Gly	Arg	Leu	Arg	Ala	Leu	Ala	Gly	Gly	Asp	
20		545			550					555						560	
	Pro	Asp	Ala	Gly	Val	Val	Thr	Gly	Ala	Val	Val	Asp	Pro	Glu	Thr	Gly	
				565				570							575		
	Ser	Gly	Gly	Gly	Gly	Val	Val	Leu	Val	Phe	Pro	Gly	Gln	Gly	Thr	Gln	
25				580				585					590				
	Trp	Val	Gly	Met	Gly	Ala	Gly	Leu	Leu	Gly	Ser	Ser	Glu	Val	Phe	Ala	
				595			600					605					
30	Ala	Ser	Met	Arg	Glu	Cys	Ala	Arg	Ala	Leu	Ser	Val	His	Val	Gly	Trp	
		610			615					620							
	Asp	Leu	Leu	Glu	Val	Val	Ser	Gly	Gly	Ala	Gly	Leu	Glu	Arg	Val	Asp	
		625			630					635						640	
35	Val	Val	Gln	Pro	Val	Thr	Trp	Ala	Val	Met	Val	Ser	Leu	Ala	Arg	Tyr	
				645			650								655		
	Trp	Gln	Ala	Met	Gly	Val	Asp	Val	Ala	Ala	Val	Val	Gly	His	Ser	Gln	
				660			665						670				
40	Gly	Glu	Ile	Ala	Ala	Ala	Thr	Val	Ala	Gly	Ala	Leu	Ser	Leu	Glu	Asp	
			675				680					685					
	Ala	Ala	Ala	Val	Val	Ala	Leu	Arg	Ala	Gly	Leu	Ile	Gly	Arg	Tyr	Leu	
45		690			695					700							
	Ala	Gly	Arg	Gly	Ala	Met	Ala	Ala	Val	Pro	Leu	Pro	Ala	Gly	Glu	Val	
		705			710				715						720		
	Glu	Ala	Gly	Leu	Ala	Lys	Trp	Pro	Gly	Val	Glu	Val	Ala	Ala	Val	Asn	
50				725			730								735		
	Gly	Pro	Ala	Ser	Thr	Val	Val	Ser	Gly	Asp	Arg	Arg	Ala	Val	Ala	Gly	
				740			745					750					
55	Tyr	Val	Ala	Val	Cys	Gln	Ala	Glu	Gly	Val	Gln	Ala	Arg	Leu	Ile	Pro	
		755			760			765									

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	Val	Asp	Tyr	Ala	Ser	His	Ser	Arg	His	Val	Glu	Asp	Leu	Lys	Gly	Glu	
	770						775					780					
5	Leu	Glu	Arg	Val	Leu	Ser	Gly	Ile	Arg	Pro	Arg	Ser	Pro	Arg	Val	Pro	
	785					790					795					800	
	Val	Cys	Ser	Thr	Val	Ala	Gly	Glu	Gln	Pro	Gly	Glu	Pro	Val	Phe	Asp	
					805					810					815		
10	Ala	Gly	Tyr	Trp	Phe	Arg	Asn	Leu	Arg	Asn	Arg	Val	Glu	Phe	Ser	Ala	
				820					825					830			
	Val	Val	Gly	Gly	Leu	Leu	Glu	Glu	Gly	His	Arg	Arg	Phe	Ile	Glu	Val	
			835					840					845				
15	Ser	Ala	His	Pro	Val	Leu	Val	His	Ala	Ile	Glu	Gln	Thr	Ala	Glu	Ala	
		850					855					860					
	Ala	Asp	Arg	Ser	Val	His	Ala	Thr	Gly	Thr	Leu	Arg	Arg	Gln	Asp	Asp	
20		865				870					875				880		
	Ser	Pro	His	Arg	Leu	Leu	Thr	Ser	Thr	Ala	Glu	Ala	Trp	Ala	His	Gly	
					885					890					895		
25	Ala	Thr	Leu	Thr	Trp	Asp	Pro	Ala	Leu	Pro	Pro	Gly	His	Leu	Thr	Thr	
				900					905					910			
	Leu	Pro	Thr	Tyr	Pro	Phe	Asn	His	His	His	Tyr	Trp	Leu	Asp	Thr	Thr	
			915				920						925				
30	Pro	Thr	Thr	Pro	Ala	Thr	Thr	Thr	Gln	Ser	Pro	Thr	Asp	Ala	Trp	Arg	
		930					935						940				
	Tyr	Arg	Val	Thr	Trp	Lys	Ala	Leu	Thr	Glu	Glu	Ser	Thr	Pro	Ala	Ser	
	945					950					955					960	
35	Ser	Pro	Ser	Gly	His	Trp	Leu	Leu	Val	Thr	Pro	Pro	Thr	Pro	Glu	Gly	
					965					970					975		
	Arg	Thr	Leu	Gly	Asp	Arg	Ala	Ala	Gly	Ala	Leu	Ala	Arg	Gln	Gly	Ala	
				980					985					990			
40	Thr	Val	Glu	Arg	Leu	Val	Val	Asp	Pro	Val	Ala	Val	Gly	Arg	Asp	Gly	
			995					1000					1005				
	Leu	Ala	Ala	Arg	Leu	Gly	Glu	Arg	Trp	Asp	Gly	Val	Leu	Ser	Leu	Leu	
45		1010					1015					1020					
	Gly	Ala	Asp	Glu	Arg	Pro	Leu	Pro	Arg	His	Pro	Ala	Leu	Asn	Arg	Ala	
	1025					1030					1035					1040	
	Val	Met	Gly	Thr	Thr	Leu	Leu	Ala	Gln	Ala	Ala	Leu	Asp	Ala	Gly	Cys	
50					1045					1050					1055		
	Glu	Ala	Arg	Ile	Trp	Ala	Val	Thr	Arg	Glu	Ala	Val	Ala	Val	Ser	Pro	
				1060					1065					1070			
55	Ser	Glu	Val	Pro	Arg	Asp	Ala	Gly	Ala	Gln	Leu	Trp	Gly	Leu	Gly	Arg	
		1075					1080						1085				

Gly Ile Ala Leu Glu His Pro Ser Leu Trp Gly Gly Leu Ile Asp Leu
 1090 1095 1100
 5 Pro Ala Val Pro Asp Glu Arg Ala Trp Ala Arg Ala Val Arg Arg Leu
 1105 1110 1115 1120
 Val Pro His Gly Glu Asp Gln Ile Ala Ala Arg Ala Ser Gly Ala Tyr
 1125 1130 1135
 10 Gly Arg Arg Leu Leu Pro Ala Pro Pro Ala Ala Ser Arg Arg Thr Cys
 1140 1145 1150
 Thr Pro Ser Gly Thr Val Leu Val Thr Gly Gly Thr Gly Ala Leu Gly
 1155 1160 1165
 15 Gly His Leu Ala Arg Arg Leu Ala Arg Gly Gly Thr Gly His Leu Val
 1170 1175 1180
 Leu Thr Ser Arg Arg Gly Pro Asp Ala Pro Gly Ala Gly Glu Leu Ala
 1185 1190 1195 1200
 20 Gly Glu Leu Ala Ser Leu Gly Ala Lys Val Thr Val Ala Ala Cys Asp
 1205 1210 1215
 Met Ala Asp Arg Glu Ala Val Arg Ala Leu Leu Asp Glu His Arg Pro
 1220 1225 1230
 25 Thr Ala Val Phe His Thr Ala Gly Thr Pro His Ser Ala Glu Phe Thr
 1235 1240 1245
 30 Ala Leu Asp Glu Thr Thr Thr Ala Gly Val Tyr Gly Gly Lys Val Leu
 1250 1255 1260
 Gly Ala Arg His Leu Asp Glu Leu Thr Arg Glu Leu Gly Ile Gly Leu
 1265 1270 1275 1280
 35 Asp Ala Phe Val Leu Phe Ser Ser Gly Ala Ala Val Trp Gly Ser Gly
 1285 1290 1295
 Gly Gln Thr Ala Tyr Gly Ala Ala Asn Ala Ala Leu Asp Ala Leu Ala
 1300 1305 1310
 40 Glu Arg Arg Arg Ala Ala Gly Leu Pro Ala Thr Ser Val Ala Trp Gly
 1315 1320 1325
 Leu Trp Gly Gly Gly Gly Met Gly Glu Gly Asp Gly Glu Glu Phe Leu
 1330 1335 1340
 45 Ser Arg Arg Gly Leu Gly Val Met Pro Pro Glu Asp Ala Leu Glu Ala
 1345 1350 1355 1360
 50 Leu Asp Arg Ala Leu Asp Arg Glu Asp Thr Thr Val Val Val Ala Asp
 1365 1370 1375
 Val Asp Trp Glu Arg Phe Ala Pro Ala Phe Thr Ala Phe Arg Pro Ser
 1380 1385 1390
 55 Ala Leu Ile Ser Arg Leu Val Ser Asp Gly Gly Glu Ala Gly Gly Gln
 1395 1400 1405

Asp Ala Pro Asp Gly Thr Leu Phe Ala Ala Gly Phe Ala Ala Ala Gly
 1410 1415 1420
 5 Pro Leu Glu Arg Gln Glu Met Leu Leu Gly Leu Val Arg Arg His Val
 1425 1430 1435 1440
 Ala Ala Val Leu Gly His Pro Gly Thr Ala Asp Ile Gly Pro Asp Arg
 1445 1450 1455
 10 Ala Phe Lys Glu Leu Gly Phe Ser Ser Val Thr Ala Val Glu Leu Ala
 1460 1465 1470
 Gly Arg Leu Gly Arg Glu Cys Gly Arg Lys Leu Pro Pro Thr Leu Val
 1475 1480 1485
 15 Phe Asp His Pro Thr Ala Ala Ala Ala Val Glu His Leu Ala Glu Leu
 1490 1495 1500
 Leu Thr Pro Pro Ala Gly Pro Ala Ala Gly Pro Arg Glu Glu Glu Ala
 1505 1510 1515 1520
 Arg Ala Ala Leu Ala Arg Val Pro Leu Glu Arg Leu Arg Glu Ala Gly
 1525 1530 1535
 25 Leu Leu Asp Ala Leu Leu Arg Leu Ala Ala Asp Glu Ser Gly Ala Thr
 1540 1545 1550
 Thr Pro Arg Thr Ser Ala Ala Ser Gly Ala Pro Arg Gly Arg Glu Glu
 1555 1560 1565
 30 Pro Asp Gly Arg Gly Glu Pro Asp Gly Ser Gly His Arg Glu Ser Pro
 1570 1575 1580
 Asp Ala Ala Gly Gly Ser Asp Ala Leu Asp Asp Leu Asp Gly Asp Ala
 1585 1590 1595 1600
 35 Leu Val Arg Leu Ala Leu Gly Glu Pro Gly Glu *
 1605 1610

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1842 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Met Ala Met Ser Ala Glu Arg Leu Thr Glu Ala Leu Arg Thr Ser Leu
 1 5 10 15
 Lys Glu Ala Glu Arg Leu Arg Arg Gln Asn Arg Glu Leu Arg Ala Ala
 20 25 30
 55 Arg Asp Ala Ala Arg Glu Pro Ile Ala Val Val Gly Met Ala Cys Arg
 35 40 45

Tyr Pro Gly Gly Val Thr Gly Pro Glu Glu Leu Trp Glu Leu Val Ala
 50 55 60
 5 Gly Gly Arg Asp Ala Ile Gly Pro Phe Pro Val Asp Arg Gly Trp Asp
 65 70 75 80
 Val Ala Ser Val Tyr Asp Pro Asp Pro Glu Ser Lys Gly Thr Thr Tyr
 85 90 95
 10 Cys Arg Glu Gly Gly Phe Leu Glu Gly Ala Gly Asp Phe Asp Ala Ala
 100 105 110
 Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Val Met Asp Pro Gln Gln
 115 120 125
 15 Arg Leu Leu Leu Glu Val Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile
 130 135 140
 Asp Pro Ser Ser Leu Arg Gly Ser Arg Gly Gly Val Tyr Val Gly Ala
 145 150 155 160
 Ala His Gly Ser Tyr Ala Ser Asp Pro Arg Leu Val Pro Glu Gly Ser
 165 170 175
 25 Glu Gly Tyr Leu Leu Thr Gly Ser Ala Asp Ala Val Met Ser Gly Arg
 180 185 190
 Ile Ser Tyr Ala Leu Gly Leu Glu Gly Pro Ser Met Thr Val Glu Thr
 195 200 205
 30 Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu Ala Val Arg Ala Leu
 210 215 220
 Arg His Gly Glu Cys Gly Leu Ala Leu Ala Gly Gly Val Ala Val Met
 225 230 235 240
 35 Ala Asp Pro Ala Ala Phe Val Glu Phe Ser Arg Gln Lys Gly Leu Ala
 245 250 255
 Ala Asp Gly Arg Cys Lys Ala Phe Ser Ala Ala Ala Asp Gly Thr Gly
 260 265 270
 40 Trp Ala Glu Gly Val Gly Val Leu Val Leu Glu Arg Leu Ser Asp Ala
 275 280 285
 Arg Arg Ala Gly His Thr Val Leu Gly Leu Val Thr Gly Thr Ala Val
 290 295 300
 45 Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala
 305 310 315 320
 50 Gln Gln Arg Val Ile Ala Glu Ala Leu Ala Asp Ala Gly Leu Ser Pro
 325 330 335
 Glu Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Arg Leu Gly
 340 345 350
 55 Asp Pro Ile Glu Ala Gly Ala Leu Leu Ala Ala Ser Gly Arg Asn Arg
 355 360 365

Ser Gly Asp His Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly
 370 375 380
 5 His Ala Gln Ala Ala Ala Gly Val Gly Gly Val Ile Lys Met Leu Gln
 385 390 395 400
 Ala Leu Arg His Gly Leu Leu Pro Arg Thr Leu His Ala Asp Glu Pro
 405 410 415
 10 Thr Pro His Ala Asp Trp Ser Ser Gly Arg Val Arg Leu Leu Thr Ser
 420 425 430
 Glu Val Pro Trp Gln Arg Thr Gly Arg Pro Arg Arg Thr Gly Val Ser
 435 440 445
 15 Ala Phe Gly Val Gly Gly Thr Asn Ala His Val Val Leu Glu Glu Ala
 450 455 460
 Pro Ala Pro Pro Ala Pro Glu Pro Ala Gly Glu Ala Pro Gly Gly Ser
 465 470 475 480
 20 Arg Ala Ala Glu Gly Ala Glu Gly Pro Leu Ala Trp Val Val Ser Gly
 485 490 495
 Arg Asp Glu Pro Ala Leu Arg Ser Gln Ala Arg Arg Leu Arg Asp His
 500 505 510
 25 Leu Ser Arg Thr Pro Gly Ala Arg Pro Arg Asp Ile Ala Phe Ser Leu
 515 520 525
 Ala Ala Thr Arg Ala Ala Phe Asp His Arg Ala Val Leu Ile Gly Ser
 530 535 540
 30 Asp Gly Ala Glu Leu Ala Ala Ala Leu Asp Ala Leu Ala Glu Gly Arg
 545 550 555 560
 35 Asp Gly Pro Ala Val Val Arg Gly Val Arg Asp Arg Asp Gly Arg Met
 565 570 575
 Ala Phe Leu Phe Thr Gly Gln Gly Ser Gln Arg Ala Gly Met Ala His
 580 585 590
 40 Asp Leu His Ala Ala His Thr Phe Phe Ala Ser Ala Leu Asp Glu Val
 595 600 605
 Thr Asp Arg Leu Asp Pro Leu Leu Gly Arg Pro Leu Gly Ala Leu Leu
 610 615 620
 45 Asp Ala Arg Pro Gly Ser Pro Glu Ala Ala Leu Leu Asp Arg Thr Glu
 625 630 635 640
 50 Tyr Thr Gln Pro Ala Leu Phe Ala Val Glu Val Ala Leu His Arg Leu
 645 650 655
 Leu Glu His Trp Gly Met Arg Pro Asp Leu Leu Leu Gly His Ser Val
 660 665 670
 55 Gly Glu Leu Ala Ala Ala His Val Ala Gly Val Leu Asp Leu Asp Asp
 675 680 685

Ala Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Arg Leu Pro
690 695 700

5 Pro Gly Gly Ala Met Val Ser Val Arg Ala Gly Glu Asp Glu Val Arg
705 710 715 720

Ala Leu Leu Ala Gly Arg Glu Asp Ala Val Cys Val Ala Ala Val Asn
725 730 735

10 Gly Pro Arg Ser Val Val Ile Ser Gly Ala Glu Glu Ala Val Ala Glu
740 745 750

Ala Ala Ala Gln Leu Ala Gly Arg Gly Arg Arg Thr Arg Arg Leu Arg
755 760 765

15 Val Ala His Ala Phe His Ser Pro Leu Met Asp Gly Met Leu Ala Gly
770 775 780

Phe Arg Glu Val Ala Ala Gly Leu Arg Tyr Arg Glu Pro Glu Leu Thr
785 790 795 800

20 Val Val Ser Thr Val Thr Gly Arg Pro Ala Arg Pro Gly Glu Leu Thr
805 810 815

Gly Pro Asp Tyr Trp Val Ala Gln Val Arg Glu Pro Val Arg Phe Ala
820 825 830

25 Asp Ala Val Arg Thr Ala His Arg Leu Gly Ala Arg Thr Phe Leu Glu
835 840 845

30 Thr Gly Pro Asp Gly Val Leu Cys Gly Met Ala Glu Glu Cys Leu Glu
850 855 860

Asp Asp Thr Val Ala Leu Leu Pro Ala Ile His Lys Pro Gly Thr Ala
865 870 875 880

35 Pro His Gly Pro Ala Ala Pro Gly Ala Leu Arg Ala Ala Ala Ala
885 890 895

Tyr Gly Arg Gly Ala Arg Val Asp Trp Ala Gly Met His Ala Asp Gly
900 905 910

40 Pro Glu Gly Pro Ala Arg Arg Val Glu Leu Pro Val His Ala Phe Arg
915 920 925

His Arg Arg Tyr Trp Leu Ala Pro Gly Arg Ala Ala Asp Thr Asp Asp
930 935 940

45 Trp Met Tyr Arg Ile Gly Trp Asp Arg Leu Pro Ala Val Thr Gly Gly
945 950 955 960

Ala Arg Thr Ala Gly Arg Trp Leu Val Ile His Pro Asp Ser Pro Arg
965 970 975

50 Cys Arg Glu Leu Ser Gly His Ala Glu Arg Ala Leu Arg Ala Ala Gly
980 985 990

Ala Ser Pro Val Pro Leu Pro Val Asp Ala Pro Ala Ala Asp Arg Ala
995 1000 1005

55

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Ser Phe Ala Ala Leu Leu Arg Ser Ala Thr Gly Pro Asp Thr Arg Gly
 1010 1015 1020
 5 Asp Thr Ala Ala Pro Val Ala Gly Val Leu Ser Leu Leu Ser Glu Glu
 1025 1030 1035 1040
 Asp Arg Pro His Arg Gln His Ala Pro Val Pro Ala Gly Val Leu Ala
 1045 1050 1055
 10 Thr Leu Ser Leu Met Gln Ala Met Glu Glu Glu Ala Val Glu Ala Arg
 1060 1065 1070
 Val Trp Cys Val Ser Arg Ala Ala Val Ala Ala Asp Arg Glu Arg
 1075 1080 1085
 15 Pro Val Gly Ala Gly Ala Ala Leu Trp Gly Leu Gly Arg Val Ala Ala
 1090 1095 1100
 Leu Glu Arg Pro Thr Arg Trp Gly Gly Leu Val Asp Leu Pro Ala Ser
 1105 1110 1115 1120
 20 Pro Gly Ala Ala His Trp Ala Ala Ala Val Glu Arg Leu Ala Gly Pro
 1125 1130 1135
 Glu Asp Gln Ile Ala Val Arg Ala Ser Gly Ser Trp Gly Arg Arg Leu
 1140 1145 1150
 25 Thr Arg Leu Pro Arg Asp Gly Gly Gly Arg Thr Ala Ala Pro Ala Tyr
 1155 1160 1165
 Arg Pro Arg Gly Thr Val Leu Val Thr Gly Gly Thr Gly Ala Leu Gly
 1170 1175 1180
 Gly His Leu Ala Arg Trp Leu Ala Ala Ala Gly Ala Glu His Leu Ala
 1185 1190 1195 1200
 35 Leu Thr Ser Arg Arg Gly Pro Asp Ala Pro Gly Ala Ala Gly Leu Glu
 1205 1210 1215
 Ala Glu Leu Leu Leu Gly Ala Lys Val Thr Phe Ala Ala Cys Asp
 1220 1225 1230
 40 Thr Ala Asp Arg Asp Gly Leu Ala Arg Val Leu Arg Ala Ile Pro Glu
 1235 1240 1245
 Asp Thr Pro Leu Thr Ala Val Phe His Ala Ala Gly Val Pro Gln Val
 1250 1255 1260
 45 Thr Pro Leu Ser Arg Thr Ser Pro Glu His Phe Ala Asp Val Tyr Ala
 1265 1270 1275 1280
 Gly Lys Ala Ala Gly Ala Ala His Leu Asp Glu Leu Thr Arg Glu Leu
 1285 1290 1295
 50 Gly Ala Gly Leu Asp Ala Phe Val Leu Tyr Ser Ser Gly Ala Gly Val
 1300 1305 1310
 Trp Gly Ser Ala Gly Gln Gly Ala Tyr Ala Ala Ala Asn Ala Ala Leu
 1315 1320 1325
 55

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Asp Ala Leu Ala Arg Arg Arg Ala Ala Asp Gly Leu Pro Ala Thr Ser
 1330 1335 1340
 5 Ile Ala Trp Gly Val Trp Gly Gly Gly Gly Met Gly Ala Asp Glu Ala
 1345 1350 1355 1360
 Gly Ala Glu Tyr Leu Gly Arg Arg Gly Met Arg Pro Met Ala Pro Val
 1365 1370 1375
 10 Ser Ala Leu Arg Ala Met Ala Thr Ala Ile Ala Ser Gly Glu Pro Cys
 1380 1385 1390
 Pro Thr Val Thr His Thr Asp Trp Glu Arg Phe Gly Glu Gly Phe Thr
 1395 1400 1405
 15 Ala Phe Arg Pro Ser Pro Leu Ile Ala Gly Leu Gly Thr Pro Gly Gly
 1410 1415 1420
 Gly Arg Ala Ala Glu Thr Pro Glu Glu Gly Asn Ala Thr Ala Ala Ala
 1425 1430 1435 1440
 20 Asp Leu Thr Ala Leu Pro Pro Ala Glu Leu Arg Thr Ala Leu Arg Glu
 1445 1450 1455
 Leu Val Arg Ala Arg Thr Ala Ala Ala Leu Gly Leu Asp Asp Pro Ala
 1460 1465 1470
 25 Glu Val Ala Glu Gly Glu Arg Phe Pro Ala Met Gly Phe Asp Ser Leu
 1475 1480 1485
 Ala Thr Val Arg Leu Arg Arg Gly Leu Ala Ser Ala Thr Gly Leu Asp
 1490 1495 1500
 Leu Pro Pro Asp Leu Leu Phe Asp Arg Asp Thr Pro Ala Ala Leu Ala
 1505 1510 1515 1520
 35 Ala His Leu Ala Glu Leu Leu Ala Thr Ala Arg Asp His Gly Pro Gly
 1525 1530 1535
 Gly Pro Gly Thr Gly Ala Ala Pro Ala Asp Ala Gly Ser Gly Leu Pro
 1540 1545 1550
 40 Ala Leu Tyr Arg Glu Ala Val Arg Thr Gly Arg Ala Ala Glu Met Ala
 1555 1560 1565
 Glu Leu Leu Ala Ala Ala Ser Arg Phe Arg Pro Ala Phe Gly Thr Ala
 1570 1575 1580
 45 Asp Arg Gln Pro Val Ala Leu Val Pro Leu Ala Asp Gly Ala Glu Asp
 1585 1590 1595 1600
 Thr Gly Leu Pro Leu Leu Val Gly Cys Ala Gly Thr Ala Val Ala Ser
 1605 1610 1615
 Gly Pro Val Glu Phe Thr Ala Phe Ala Gly Ala Leu Ala Asp Leu Pro
 1620 1625 1630
 55 Ala Ala Ala Pro Met Ala Ala Leu Pro Gln Pro Gly Phe Leu Pro Gly
 1635 1640 1645

Glu Arg Val Pro Ala Thr Pro Glu Ala Leu Phe Glu Ala Gln Ala Glu
 1650 1655 1660
 5 Ala Leu Leu Arg Tyr Ala Ala Gly Arg Pro Phe Val Leu Leu Gly His
 1665 1670 1675 1680
 Ser Ala Gly Ala Asn Met Ala His Ala Leu Thr Arg His Leu Glu Ala
 1685 1690 1695
 10 Asn Gly Gly Gly Pro Ala Gly Leu Val Leu Met Asp Ile Tyr Thr Pro
 1700 1705 1710
 Ala Asp Pro Gly Ala Met Gly Val Trp Arg Asn Asp Met Phe Gln Trp
 1715 1720 1725
 15 Val Trp Arg Arg Ser Asp Ile Pro Pro Asp Asp His Arg Leu Thr Ala
 1730 1735 1740
 Met Gly Ala Tyr His Arg Leu Leu Leu Asp Trp Ser Pro Thr Pro Val
 1745 1750 1755 1760
 20 Arg Ala Pro Val Leu His Leu Arg Ala Ala Glu Pro Met Gly Asp Trp
 1765 1770 1775
 Pro Pro Gly Asp Thr Gly Trp Gln Ser His Trp Asp Gly Ala His Thr
 1780 1785 1790
 25 Thr Ala Gly Ile Pro Gly Asn His Phe Thr Met Met Thr Glu His Ala
 1795 1800 1805
 30 Ser Ala Ala Ala Arg Leu Val His Gly Trp Leu Ala Glu Arg Thr Pro
 1810 1815 1820
 Ser Gly Gln Gly Gly Ser Pro Ser Arg Ala Ala Gly Arg Glu Glu Arg
 1825 1830 1835 1840
 35 Pro *

(2) INFORMATION FOR SEQ ID NO:7:

- 40 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44377 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 45 (ii) MOLECULE TYPE: DNA (genomic)
 (ix) FEATURE:
 (A) NAME/KEY: CDS
 (B) LOCATION: 350..14002
 50 (ix) FEATURE:
 (A) NAME/KEY: CDS
 (B) LOCATION: 14046..20036
 55 (ix) FEATURE:
 (A) NAME/KEY: CDS

(B) LOCATION: 20110..31284

(ix) FEATURE:

(A) NAME/KEY: CDS

(B) LOCATION: 31329..36071

(ix) FEATURE:

(A) NAME/KEY: CDS

(B) LOCATION: 36155..41830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

	GACCGCTCGG GGAGACCTGA CATATTCGTC GCGAAGTGGT TGTCCGCGCC GCGAGGTACT	60
15	GAAATCTTCT CCGCTCGCCC AGGACTCCGC GTGCAGGTCA CCGGAGTGCG CGACCGGCCG	120
	GGACGTCGGA GCGCCGACCC TCGCGACCTG GTGCGATGCC GTGTGGTCCC GCATGATCCC	180
	GCGCCGTCTC CGGTGACGAG AATCGGTGGA CAATCTCCGA ACTTGACACA ATTGATTGTC	240
20	GTTACACCGC CGTTCTGTGTC GCCCGGCAGT TCGCCCGCTG TACGCTCGGG AAGATCAAGA	300
	AAAGGCAGAA AAGCCACGGC GTGGTACGGC GAACATATGA GGGATGCAGG TGTCTGGAGA	360
	ACTCGCGATT TCCCGCAGTG ACGACCGGTC CGACGCCGTT GCCGTGGTCG GAATGGCGTG	420
25	CCGGTTTCCC GCGCCCCCGG GAATTGCCGA ATTCTGGAAA CTGCTGACCG ACGGAAGGGA	480
	CGCGATCGGC CCGGACGCCG ACGGCCGCCG GCGCGGCATG ATCGAGGCGC CCGGCGACTT	540
30	CGACGCCGCC TTCTTCGGCA TGTCAACCCG CGAGGCCGCC GAGACCGACC CCCAGCAGCG	600
	CCTGATGCTC GAACTCGGCT GGGAGGCTCT GGAGGACGCC GGCATCGTCC CCGGCTCCCT	660
	GCGCGGCGAG GCGGTGCGCG TCCTTCGTGG GGCATGCAC GACGACTACG CCACCCTGCT	720
35	CCACCGCGCC GCGCGCGCGG TCGGCCCCCA CACCGCCACC GGCCTCCAGC GCGCCATGCT	780
	CGCCAACCGG CTCTCTTACG TCCTGGGGAC GCGCGGCCCC AGCCTCGCGG TCGACACCGC	840
	CCAGTCGTCC TCCCTGGTCG CCGTGGCCCT CGCGTCGAG AGCCTGCGGG CCGGCACCTC	900
40	CCGCGTCGCC GTCGCCGGGG GCGTCAACCT GGTCTCTGCC GACGAGGGAA CCGCCGCCAT	960
	GGAACGCCTC GCGCGCTGT CACCCGACGG CCGCTGCCAC ACCCTCGACG CCCGTGCCAA	1020
45	CGGCTATGTC CCGGTGAGG GCGGCGCGC GGTCTCTCTG AAGCCCCCTG CCGACGCCCT	1080
	GGCCGACGGG GACCCCGTGT ACTGCGTGGT GCGTGGCGTC GCCGTGCGCA ACGACGGCGG	1140
	CGGCCCCGGG CTGACCGCTC CCGACCGGA GGGACAGGAG GCGGTGCTCC GGGCCGCTG	1200
50	CGCCCAGGCC CCGGTGACCC CCGCCGAGGT GCGTTTCGTC GAACTGCACG GCACGGGAAC	1260
	CCCGGTGGGC GACCCGCTCG AGGCACACGC CCTCGGCGCG GTGCACGGCT CCGGTGGGCC	1320
	GGCCGACGAC CCCCTGCTGG TGGGGTGGT GAAGACCAAC ATCGGCCACC TGGAGGGCGC	1380
55	CGCCGGCATC GCGGGCCTGG TCAAGGCCGC ACTGTGCTG CCGGAACGCA CCCTTCCCGG	1440

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	CTCGCTGAAC	TTGCCCACCC	CCTCTCCGGC	CATCCCCTG	GACCAGCTCC	GGCTGAAGGT	1500
5	GCAGACCGCT	GCCGCCGAGC	TGCCGCTCGC	CCCGGGCGGC	GCACCCCTGC	TGGCGGGTGT	1560
	CAGTTCGTTC	GGCATCGGTG	GCACCAACTG	CCATGTGGTC	CTGGAACACC	TGCCCTCCCG	1620
	GCCCACCCCG	GCCGTCTCCG	TCGCCGCCCTC	GCTTCCGGAC	GTCCCGCCGC	TGTTGTGTGTC	1680
10	CGCGCGGTG	GAGGGGGCGT	TGCGGGCGCA	GGCGGTGCGG	TTGGGTGAGT	ACGTGGAGCG	1740
	GGTGGGCGCG	GATCCGCGGG	ATGTGGCTTA	TTCCGTGGCT	TGCACGCCGA	CTCTTTTCGA	1800
	GCACCGTGCG	GTGGTGCCGT	GTGGTGGGCG	TGGGAGCTC	GTCGCTGCTC	TTGGTGGGTT	1860
15	TGCTGCCGGG	AGGGTGTCTG	GGGTGTGCG	GTCCGGGCGG	GCTGTGCCCG	GTGGGGTGGG	1920
	GGTGTGTTC	ACGGGTCAGG	GTGCGCAGTG	GGTTGGTATG	GGGCGTGGGT	TGTATGCGGG	1980
	GGGTGGGGTG	TTTGCGGAGG	TGCTGATGA	GGTGTGTCTG	ATGGTGGGGG	AGGTGGATGG	2040
20	TCGGTCGTTG	CGGGATGTGA	TGTTCCGGCA	CGTCGACGTG	GACGCGGGTG	CCGGGGCTGA	2100
	TGCGGGTGCC	GGTGCGGGTG	CTGGGGTCCG	TTCTGGTTCC	GGTTCTGTGG	GTGGGTGTGT	2160
	GGTCCGACG	GAGTTTGCTC	AGCCTGCGTT	GTTTGCCTTG	GAGGTGGCGT	TGTTCCGGGC	2220
25	GTTGGAGGCT	CGGGGTGTGG	AGGTGTCCGT	GGTGTGGGGT	CATTCCGGTG	GGGAGGTGGC	2280
	TGCTGCGTAT	GTGGCGGGGG	TGTTGTCTGT	GGGTGATGCG	GTGCGGTTGG	TGGTGGCGCG	2340
30	GGGTGGGTTG	ATGGGTGGGT	TGCCCGTGGG	TGGGGGATG	TGGTCCGGTG	GGGCGTCGGA	2400
	GTCGGTGGTG	CGGGGGGTG	TTGAGGGGTT	GGGGAGTGG	GTGTCGGTTG	CGGCGGTGAA	2460
	TGGGCCGCGG	TCGGTGGTGT	TGTCGGGTGA	TGTGGGTGTG	CTGGAGTCCG	TGGTTGCCTC	2520
35	GCTGATGGGG	GATGGGGTGG	AGTCCCGCGG	GTTGGATGTG	TCGCATGGGT	TTCAATTCGGT	2580
	GTTGATGGAG	CCGGTGTGTG	GGGAGTTCCG	GGGGGTTGTG	GAGTCGTTGG	AGTTCCGGTCG	2640
	GGTGCGGCCG	GGTGTGGTGG	TGGTGTCCGG	TGTGTCCGGT	GGGGTGGTGG	GTTCCGGGGGA	2700
40	GTTGGGGGAT	CCGGGGTATT	GGGTGCGTCA	TGCGCGGGAG	GCGGTGCCGT	TCGCGGATGG	2760
	GGTGGGGGTG	GTGCGTGGTC	TGGGTGTGGG	GACGTTGGTG	GAGGTGGGTC	CGCATGGGGT	2820
45	GCTGACGGGG	ATGGCGGGTG	AGTGCCCTGG	GGCCGGTGAT	GATGTGGTGG	TGGTGCCGGC	2880
	GATGCGGCGG	GGCCGTGCCG	AGCGGGAGGT	GTTCCAGGGC	GCGCTGGCGA	CGGTGTTTAC	2940
	CCGGGACGCC	GGCCTGGACG	CCACGGCACT	CCACACCGGG	AGCACCGGCC	GGCGCATCGA	3000
50	CCTCCCCACC	TACCCCTTCC	AACGCCGTAC	CCACTGGTTC	CCCGCGCTGA	GCCGGCCGGT	3060
	CACGGCCGAC	GCCGGGGCGG	GTGTGACCGC	CACCGATGCC	GTGGGGCACA	GCGTCTCCCC	3120
	GGACCCGGAG	AGCACCGAGG	GGACGTCCCA	CAGGGACACG	GACGACGAGG	CGGACTCGGC	3180
55	GTCACCGGAG	CCGATGTCCC	CCGAGGATGC	CGTCCGCCTG	GTCCGCGAGA	GCACCGCGGC	3240

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	CGTCCTGGGC CACGACGATC CCGGCGAGGT CGCGCTCGAC CGCACCTTCA CCTCCCAGGG	3300
5	CATGGACTCG GTGACCGCGG TCGAGCTGTG CGACCTGCTG AAGGGCGCCT CGGGGCTCCC	3360
	CCTCGCCGCC ACGCTGGTCT ACGACCTGCC CACCCCGCGT GCCGTCGCCG AGCACATCGT	3420
	GGAAGCCGCG GCGGGGCCGA AGGACTCGGT TGCCGGTGGG CCCGGAGTGC TCTCGTCGGC	3480
10	CGCGGTAGGG GTGTGGACG CCCGGGGCGG CAGCCGGGAC GACGACGACC CGATCGCCAT	3540
	CGTGGGTGTC GGCTGCCGGC TCCCGGGCGG CGTCGACTCG CGCGCCGCTC TCTGGGAGCT	3600
	GCTGGAGTCC GCGCCGACG CCATCTCGTC CTTCCCCACC GACCGCGGCT GGGACCTCGA	3660
15	CGGGCTGTAC GACCCCGAGC CCGGACGCC CGGCAAGACC TATGTGCGGG AGGGCGGGTT	3720
	CCTGCACTCG GCGGCCGAGT TCGACGCGGA GTTCTTCGGG ATATCGCCGC GCGAGGCCAC	3780
	GGCCATGGAC CCGCAGCAGC GCTTGCTGCT GGAAGCGTCG TGGGAGGCCC TCGAGGACGC	3840
20	CGGAGTGCTC CCCGAGTCAC TCGCGGGCGG CGACGCCGGA GTGTTCTGTC GCGCCACCGC	3900
	ACCGGAGTAC GGGCCGAGG TTACAGAGG AGCGGACGGA TACGAGGGGT ACCTGCTCAC	3960
25	CGGCACCACC GCGAGCGTGG CCTCCGGCCG GATCGCCTAC ACCCTCGGCA CCGGCGGACC	4020
	GGCGCTCACC GTCGACACCG CGTGCTCCTC GTCCCTGGTG GCGCTGCACC TGGCCGTGCA	4080
	GGCGCTGCGC CCGGGCGAGT GCGGGCTGGC TCTGGCGGGC GCGCCACGG TGATGTGGG	4140
30	GCCCGGCATG TTCGTGGAGT TCTCGCGGCA GCGCGGGCTC GCCCCGACG GCCGCTGCAT	4200
	GCCGTTCTCC GCCGATGCCG ACGGTACGGC CTGGTCCGAG GGTGTGCGCG TACTGGCACT	4260
	GGAGCGGCTC TCCGACGCCC GCGGTGCGGG ACACCGGGTG CTGGGCGTGG TCGGGGGCAG	4320
35	TGCGGTCAAC CAGGACGGTG CCAGCAACCG CCTGACCGCT CCCAACCGCT CCGCGCAGGA	4380
	GGGCGTCATC CGAGCTGCCC TGGCCGACGC CGGCCTCGCG CCGGGTGACG TGGACGCGGT	4440
40	GGAGGCGCAC GTACGGGGA CCGCGCTGGG CGATCCGATC GAGGCGAGCG CGCTGCTGGC	4500
	CACGTACGGG CGTGAGCGGG TGGGCGACCC CTTGTGGCTC GGGTCGCTGA AGTCCAACGT	4560
	CGGTACACAC CAGGCCGCCG CCGGGGCCGC GGGTGTGGTC AAGATGCTGC TTGCCCTGGA	4620
45	GCACGGCACG CTGCCGCGGA CACTTCACGC GGACCGGCCC AGCACGCACG TCGACTGGTC	4680
	GTCCGGCACC GTCGCCCTGC TGGCAGAGGC GCGCCGGTGG CCGGGCGGCT CGGACCGCCC	4740
	GCGCCGGGCG GCTGTGTCGT CGTTCGGGAT CAGTGGGACG AACCGGCATC TGATCATCGA	4800
50	GGAGGCGCCG GAGTGGGTCG AGGACATCGA CGGCGTCGCT GCTCCTGACC GCGGTACCGC	4860
	GGACCGGCT GCTCCGTCGC CGCTGTTGTT GTCCGCGCGG TCGGAGGGGG CGTTGCGGGC	4920
	GCAGGCGGTG CGGTGGGTG AGTACGTGA GCGGGTGGGT GCGGATCCGC GGGATGTGGC	4980
55	TTATTGCGCTG GCTTCGACGC GGACTCTTTT CGAGCACCGT GCGGTGGTGC CGTGTGGTGG	5040

	GCGTGGGGAG CTCGTCGCTG CTCTTGGTGG GTTTGCTGCC GGGAGGGTGT CTGGGGGTGT	5100
5	GCGGTCCGGG CCGGCTGTGC CCGGTGGGGT GGGGCTGTTG TTCACGGGTC ACGGTGCGCA	5160
	GTGGGTTCGT ATGGGGCGTG GGTGTATGTC GGGGGGTGGG GTGTTTGCGG AGGTGCTGGA	5220
	TGAGGTGTTG TCGATGCTGG GGGAGGTGGA TGGTCGGTCG TTGCGGGATG TGATGTTCCG	5280
10	CGACGTCGAC GTGGACGCGG GTGCCGGGGC TGATGCGGGT GCCGGTGCGG GTGCTGGGGT	5340
	CGGTTCCTGT TCCGGTTCTG TCGGTGGGTT GTTGGGTCCG ACGGAGTTTG CTCAGCCTGC	5400
	GCTGTTTGCG TTGGAGGTGG CGTTGTTCCG GGCCTTGAGG GCTCGGGGTG TGGAGGTGTC	5460
15	GGTGGTGTG GGTCAATTCG TGGGGGAGGT GGCTGCTGCG TATGTGGCGG GGGTGTGTGTC	5520
	GTGGGTGAT GCGGTGCGGT TGGTGGTGGC GCGGGGTGGG TTGATGGGTG GGTGCGCGGT	5580
20	GGGTGGGGGG ATGTGGTCCG TGGGGGCGTC GGAGTCCGTG GTCCGGGGGG TTGTTGAGGG	5640
	GTGGGGGAG TGGGTGTCCG TTGCGGCGGT GAATGGGCCG CCGTCCGTGC TGTGTGTCGG	5700
	TGATGTGGGT GTGCTGGAGT CCGTGGTTGC CTCGCTGATG GGGATGGGG TGGAGTGCCG	5760
25	GCGGTTGCAT GTGTGCGATG GGTTCATTG GGTGTTGATG GAGCCGGTGT TGGGGGAGTT	5820
	CCGGGGGGTT GTGGAGTCGT TGGAGTTCGG TCGGCTGCGG CCGGGTGTGG TGGTGGTGTGTC	5880
	GGGTGTGTG GGTGGGGTGG TGGGTTCGGG GGAGTTGGGG GATCCGGGGT ATTGGGTGCG	5940
30	TCATGCGCGG GAGGCGGTGC GTTTCGCGA TGGGGTGGGG GTGGTGCCTG GTCTGGGTGT	6000
	GGGGACGTTG GTGGAGGTGG GTCCGCATGG GTGCTGACG GGGATGGCGG GTGAGTGCCT	6060
	GGGGCCCGT GATGATGTGG TGGTGGTGCC GCGCATGCGG CCGGGCCGTG CCGAGCGGGA	6120
35	GGTGTTCGAG CCGGCGCTGG CGACGGTGTT CACCCGGGAC GCCGGCCTGG ACCCCACGGC	6180
	ACTCCACACC GGGAGCACCG GCCGGCGCAT CGACCTCCCC ACCTACCCCT TCCAACGCGA	6240
40	CCGCTACTGG CTGGACCCCG TTCGCACGCG CGTGACCGGC GTCGAGCCCG CCGGCTCGCC	6300
	GGCGGACGCT CCGGCCACTG AGCGGGGACG GTCGACGACG GCCGGGATCC GCTACCGCGT	6360
	CGCTTGGCAG CCGGCCGTCG TCGACCGCG CAACCCCGGG CCTGCCGGTC ATGTGCTGCT	6420
45	TCTGGCCCCG GACGAGGACA CGGCCGACTC CGGACTCGCC CCCGCGATCG CACGTGAACT	6480
	CGCCGTGCGC GGGGCCGAGG TCCACACCGT CGCCGTGCCG GTCGGTACAG GCCGGGAGGC	6540
	AGCCGGGGAC CTGTTGCGGG CCGCCGGTGA CCGTGCCGCC CGCAGACCC GAGTTCTGTG	6600
50	GCTCGCCCCG GCCGAGCCGG ACGCGGCCGA CGCCGTGCGC CTCGTCCAGG CGCTGGGCGA	6660
	GGCGGTACCC GAAGCCCCGC TCTGGATCAC CACCCGTGAG GCGGCGGCCG TGCGGCCGGA	6720
	CGAGACCCCT TCCGTGCGGG GCGCTCAGCT GTGGGGACTC GGACAGGTG CCGCGCTCGA	6780
55	ACTGGGGCGG CGCTGGGGCG GCTTGGCGGA CCTGCCCGGG AGTGCCTGCG CCGCGGTGCT	6840

	CCGTACGTTT	GTCGGGGCGC	TGCTCGCCCG	GGGAGAGAAC	CAGTTCGCGG	TACGGCCCTC	6900
5	CGGCGTCCAT	GTCCGCCGTG	TGGTTCCCGC	GCCCGTCCCC	GTCCCGGCCT	CCGCTCGCAC	6960
	CGTCACCACG	CCCCCGCCA	CCGCCGTCCG	CGAGGACGCA	CGGAACGACA	CCTCGGACGT	7020
	GGTCGTGCCG	GACGACCGGT	GGTCCTCCCG	CACCGTACTG	ATCACCGGGG	GCACCGGTGC	7080
10	CCTGGGTGCG	CAGGTGCCCC	GCAGGCTCGC	CCGGTCGGGC	GCCGCGCGTC	TGCTCCTGGT	7140
	GGGCCGGCGC	GGCGCGCCCG	GCCCCGGAGT	GGGCGAACTC	GTCGAGGAGC	TGACGGCGCT	7200
	CGGTTCCGAA	GTGGCCGTG	AGGCCTGCGA	CGTCGCCGAC	CGGACGCGAC	TGGCCGCGCT	7260
15	CCTCGCGGGC	CTCCCCGAGG	AGCGGCCCTT	CGTCGCCGTA	CTGCACGCGG	CAGGTGTGCT	7320
	CGACGACGGT	GTGCTCGACT	CGCTCACCTC	CGACCGGGTG	GACGCCGTAC	TGCGGGACAA	7380
	GGTCACCGCC	GCCCGTCACC	TGGACGAGCT	GACCGCGGAC	CTTCGCTCG	ACGCCTTCGT	7440
20	GCTCTTCTCC	TCCATCGTCG	GCGTGTGGGG	CAACGGAGGG	CAGGCCGTCT	ACGCGGCCGC	7500
	CAACGCCGCG	CTCGACGCCC	TGGCGCAGCG	GCGCCGGGCC	AGGGGAGCCC	GTGCCGCCCTC	7560
25	GATCGCCTGG	GGGCCGTGGG	CCGGTGCCGG	AATGGCCTCC	GGAACGGCGG	CGAAGTCCTT	7620
	CGAACGGGAC	GGCGTCACGG	CCCTGGACCC	CGAGCGCGCG	CTCGACGTCC	TCGACGACGT	7680
	GGTGGGCGCC	GGCGGGACCT	CTGCCGCAAG	GACGCACGCG	GCCGGCGAGA	GCTCCCTGCT	7740
30	CGTCGCCGAC	GTGGACTGGG	AGACCTTCGT	CGGGCGTTCC	GTACCCCGCC	GTACCTGGTC	7800
	GCTCTTCGAC	GGCGTCTCCG	CGCCCCGTTC	GGCGCGTGCC	GGCCATGCCG	CGGACGACCG	7860
	TGCCGCTCTC	ACCCCAGGGA	CGCGGCCCGG	CGACGGCGCA	CCGGGCGGGA	GCGGACAGGA	7920
35	CGGGGGCGAG	GGCCGGCCGT	GGCTCTCCGT	CGGCCCTCCG	CCGGCGGAAC	GCCGTGCTGC	7980
	TCTGCTCAGC	CTTGTGCGCT	CGGAGGCCGC	CGGGATCCTG	CGCCACGCCCT	CGGCCGACGC	8040
40	GGTCGACCCG	GAGCTGGCCT	TCCGGTCCGC	CGGGTTCGAC	TCCCTCACC	TTCTCGAACT	8100
	GCGTAACCGC	CTGACCGCTG	CCACCGGCCT	GAACCTGCCG	AACACGCTGC	TCTTCGACCA	8160
	CCCGACCCCC	CTCTCGCTCG	CCTCCACCTT	GCACGACGAA	CTGTTCCGTC	CCGACAGCGA	8220
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	GATCGTGGGC	ATGGCGTGCC	GTTACCCGGG	CGGTGTGGCG	TCGCCGGACG	ACCTGTGGGA	8340
	CCTGGTGGCC	GGTGACGGGC	ACACGCTCTC	CCCGTTCCCG	GCCGACCGTG	GCTGGGACGT	8400
50	CGAGGGGCTG	TACGACCCGG	AGCCGGGGGT	GCCGGGCAAG	AGCTATGTAC	GGGAAGGCGG	8460
	GTTCTGCGT	TCCGCGGCCG	AGTTCGACGC	GGAGTTCTTC	GGGATATCGC	CGCGCGAGGC	8520
	CACGGCCATG	GACCCGACGC	AGCGGTTGCT	GCTGGAGACG	TCGTGGGAGG	CGCTGGAGCG	8580
55	GGCCGGCATC	GTTCCGACT	CGCTGCGCGG	CACCCGGACC	GGTGTCTTCA	GCGGCATCTC	8640

	CCAGCAGGAC TACGCGACCC AGCTGGGGGA CGCCGCCGAC ACCTACGGCG GGCATGTGCT	8700
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	GCCGGCGCTG ACGGTGGACA CGGCGTGTTC GTCGTGCTTG GTGGCGTTGC ATCTGGCGGT	8820
	GCAGTCGTTG CGGCGGGGTG AGTGTGATCT GGCCTTGGCC GGTGGGGTGA CCGTGATGGC	8880
10	GACGCCGACG GTGTTCTGTG AGTCTCGCG GCAGCGGGGG CTGGCGGGCG ACGGGCGGTG	8940
	CAAGGCGTTC GCGGAGGGTG CCGACCGGAC GCGGTGGGCG GAGGCTGTGC GTGTGCTGCT	9000
	GGTGGAGCGG CTTTCCGACG CGCGCCGCAA CGGTCATCGG GTGCTGGCGG TGGTGGGGG	9060
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	GCAGCGGGTG ATCCGTGAGG CGCTGGCTGA TCGGGGGCTG GTGCCCCGCC ACGTGGATGT	9180
	GGTGGAGGCG CACGGTACGG GGACGGCGCT GGGTGATCCG ATCGAGGCGG GTGCCCTGCT	9240
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25	GCGGCATGGG TCGTTGCCGC GGACGCTGCA TGTGGATGCG CCGTCGTCGA AGGTGGAGTG	9420
	GGCTTCGGGT GCGGTGGAGC TGCTGACCGA GACCCGGTCG TGGCCGCGGC GGGTGGAGCG	9480
	GGTGGCGCGG GCCGCGGTGT CGGCGTTCGG GGTGAGCGGG ACCAACGCCC ATGTGGTCCT	9540
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	GGCGCAGGCG GTGCGGTTGC GTGAGTGTGT GGAGCGGGTG GGTGCGGATC CGCGGGATGT	9720
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40	GTCTTCGGGG GCCGTGCTG TGCTGCGGG GAGTGCCTG CCGGGTCGTG GGTGGGGGT	9900
	GTGTTCACG GGTACGGGTG CGCAGTGGGT TGGTATGGGG CGTGGGTGTG ATGCGGGGGG	9960
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	GGTGGCGGGG GTTGTGAGG GGTGGGGGA GTGGGTGTCG GTTGGCGCGG TGAATGGGCC	10380
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	GCCGGGTGTG GTGGTGGTGT CGGGTGTGTC GGGTGGGGTG GTGGGTTCGG GGGAGTTGGG	10620
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10	GGTGGTGCGT GGTCTGGGTG TGGGGACGTT GGTGGAGGTG GGTCCGCATG GGGTGCTGAC	10740
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	CACCTACCCC TTCCAACACA ACCGCTACTG GGCAACCGGC TCAGTGACCG GTGCGACCGG	10980
20	CACCTCGGCA GCCGCGCGCT TCGGCCTGGA GTGGAAGGAC CACCCCTTCC TCAGCGGCGC	11040
	CACGCCGATA GCCGGCTCCG GCGCGCTGCT CCTCACCAGC AGGGTGGGGC TCGCTGCCCCA	11100
	CCCGTGGCTG GCCGACCACG CCATCTCCGG CACGGTGTG CTCCCCGAA CGGCGATCGC	11160
25	CGACCTGCTG CTGCGGGCGG TCGAGGAGGT CGGCGCCGGA GGGGTCGAGG AACTGACGCT	11220
	CCATGAGCCC CTGCTCCTCC CCGAGCGAGG CGGCCTGCAC GTCCAGGTGC TGGTCGAGGC	11280
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40	GGCCCTCCAC CCGTGGCGCG CCGGCGGGCT GCTGCCCGAC ACGGGCGGCA CCACCTGGGC	11700
	GCCGTTCCTC TGGCAGGGCA TCGCGCTCCA CACCACCGGA GCCGAGACGC TCCGCGTCAG	11760
	ACTGGCCCCT GCGGCCGGCG GCACCGAGTC GGCCTTCTCC GTACAGGCCG CCGACCCGGC	11820
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	CGACGCGCCG CAACCGCTGT ACCGCGTCGA CTGGCAGCCG GTCGGCCAGG GGACCGAGGC	11940
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	GGACGCCGAG GCTCGGGCCC GTGCGGGTGA CGGCTGGGAC GACGATCCCC TACGTGTGCG	12180
55	CCTCGGGCGC GGCCTGACCC TGGTCCGGGA GTGGGTCGAG GACGAACGGT TGGCGGACTC	12240

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	CACCCTCATC	GACGTGGACG	ATTCCCCCGA	GTCCCGTGCG	GCTCTGCCCC	GGGCTCTGGG	12420
	ATCGGCCGAG	CGACAACTCG	CCCTGCGGAC	GGGCGACGTG	CTGGCGCCGG	CCCTGGTCCC	12480
10	GATGGCCACC	CGGCCGGCGG	AGACCACTCC	AGCGACGGCG	GTCGCCTCGG	CGACAAACACA	12540
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	ATGCGACCTC	ACCGACATCG	AGGCCGTACG	GAAGGCCGTC	GCCGCGGTGC	CGTCGGACCA	12840
20	CCCGCTGACC	GGTGTGGTGC	ACACCGCCGG	CGTGCTGGAC	GACGGCGCCC	TGACCGGCCT	12900
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25	CGAGGCGACC	CTCGACCGGC	CGTGGCGCGC	GTTCTGCTCT	TTCTCCGCCG	CCGCGGACT	13020
	CCTGGGCGCG	CCCGGGCAGG	CCTCCTACCG	CGCCGCCAAC	GCGGTCTCTG	ACGCGCTCGC	13080
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50	GCTGGGCACG	GGCGACGCCC	GCCGGGCCGA	GGTACGAGAG	CAGCTCGTCG	GACTGCTGGC	13860
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5	TCGTGGGCAT	GGCGTGCCGT	TACCCGGGCG	GTGTGGCGTC	GCCGGACGAC	CTGTGGGACC	14220
	TGGTGGCAGC	CGGTACGGAC	GCGGTCTCCG	CGTTCCCCGT	CGACCGTGGC	TGGGACGTCG	14280
10	AGGGGCTGTA	CGACCCCGAT	CCGGAGGCGG	TGGGGCGTAG	TTACGTGCGG	GAGGGCGGGT	14340
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	AGTCGTTGCG	GCGGGGTGAG	TGTGATCTGG	CGTTGGCCCG	TGGGGTGACG	GTGATGGCGA	14760
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25	AGGCGTTCCG	GGAGGGTGCG	GACGGGACGG	CGTGGGCCGA	GGGTGTGGGC	GTGCTGCTGG	14880
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45	CCGACGCGGT	GACGGGTCCG	TTGTCTGTGG	TGCTTCTGTC	GCGGTGCGAG	GGGGCGTTGC	15540
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50	TGGCGGGGTC	GTGGTGCGTG	TCGCGTGCGT	CGTTCCGTGA	GCGTGCGGTG	GTGGTGCGCC	15660
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15	GGGGGGTTGT	TGAGGGGTTG	GGGAGTGGG	TGTCGGTTGC	GGCGGTGAAT	GGGCCGCGGT	16320
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25	CGGGGTATTG	GGTGCCTCAT	GCGCGGGAGG	CGGTGCGTTT	CGCGGATGGG	GTGGGGGTGG	16620
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35	TGTCGGCGGC	GGGTCTCGCG	GAGGTGGAGC	ACCCCTTGCT	CACCGCCGCC	GTGGAACATG	16980
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40	CCGACCACCT	GGTGTGGGAC	CGAGGCGTGG	TGCCGGGGAC	CGCGCTGCTG	GAGACGGTGC	17100
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	GGCGTCGAGG	CGACGAGGTC	TTCCGCCGAC	TACGGCTGCC	CGACGCGCAC	GCGGTGACCG	17580
55	CTGATCGTTA	CGGGGTGCAC	CCCGCCCTGC	TCGACGCGGT	GCTCCACCCG	ATCGCGTCGC	17640

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	TGGACCCGCT	GGGCGACGGC	GGGCACGGTC	TGCTGCCGTT	CTCCTGGACC	GACGTACAGG	17700
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10	ACTGGCTGCC	GTTCCCGGGT	CCGGTGCCCC	TATCCGCGGG	CGGCCGCTGG	GCGGTCGTCC	17940
	GACCCGAGGC	CGAAGCCACG	GCTGCCGGAC	TGCGTGCGGT	GGGCCTCGAC	GTGCGTACCC	18000
	ATGCGCTCCC	CCTCGGAGAG	CCCCTGCCTC	CGCAGGCCGG	TACCGACGCG	GAGGTGATCA	18060
15	TCCTCGACCT	GACCACCACC	GCAGCCGGCC	GTACGGCGTC	GGACGGGGGG	CGGCTCAGTC	18120
	TCCTCGACGA	GGTGCGTGCG	ACGGTGCGCC	GGACCCTCGA	AGCCGTACAG	GCCCGCCTCG	18180
	CCGACACCGA	AACGGCCCCC	GACGTCGACG	TCCGTACGGC	CGCGCGCCCC	CGCACAGCCG	18240
20	CCCGTACAAG	CCCCCGCGTG	GACACCCGCA	CGGGAGCCCC	CACCGCTGAC	GGCCCCCGGC	18300
	TGTCGTCCT	GACCCGGGGC	GCGGCCGGAC	CCGAGGGAGG	CGCGGCCGAT	CCCGCGGGTG	18360
25	CCGCTGTCTG	GGGGCTCGTC	CGGGTCGCCC	AGGCCGAACA	GCCCGGCCGC	TTCACCCTGG	18420
	TGGACGTCGA	CGGCACCCAG	GCGTCGCTGC	GGGCCCTGCC	CGGTCTGCTG	GCCACGGATG	18480
	CCGGCCAGTC	GGCCGTGCGC	GACGACGTCG	TCACCGTCCC	GCGCCTCGTC	CCGGTGGCCG	18540
30	ACCCCGTCCC	CCACGGCGGC	GGCAGGCGCG	CCGACGGGAC	GGGTGCCGGC	GAGCCGTCCG	18600
	CGACCCTGGA	CCCCGAAGGC	ACCGTGCTGA	TCACCGGCGG	CACCGGAGCA	CTGGCCGCGG	18660
	3AAACGCCCC	GCACCTGGTC	GACCGGCACA	AGGTGCGCCA	TCTCCTGCTG	GTGGGCAGGC	18720
35	GCGGTCCCCA	CGCACCCGGC	GTCGATCGAC	TGGTCGCCGA	GTTGACCGAG	TCGGGTGCCG	18780
	AGGTGCGCCG	ACGGGCTGTG	GACGTACACG	ACCGCGACGC	CCTGCGCCGC	CTGCTCGACG	18840
40	CACTCCCCGA	CGAACACCCG	CTGACCTGCG	TGGTGACAC	CGCCGGGGTG	CTCGACGACG	18900
	GCGTGCTCTC	CGCCCAGACG	GCCGAGCGGA	TCGACACGGT	GCTCCGGCCC	AAGGCCGACG	18960
	CCGCCGTCCA	CCTGGACGAG	CTGACCCGGG	AGATCGGACG	GGTGCCCCCT	GTGCTGTACT	19020
45	CCTCGGTCTC	GGCCACCCTG	GGCAGCGCGG	GGCAGGCCGG	GTACGCGGCG	GCCAACGCCT	19080
	TCATGGACGC	GCTGGCCGCC	CGGCGGTGCG	CCGCCGGGCA	CCCCGCGCTG	TCGCTCGGCT	19140
	GGGGCTGGTG	GTCCGGGGTG	GGTCTCGCCA	CCGGACTGGA	CGGAGCGGAC	GCGGCGCGGG	19200
50	TCAGGCGCTC	GGGTCTCGCC	CGGCTCGACG	CCGGCGCCGC	ACTGGACCTG	CTCGACCGGG	19260
	CGGTGACCCG	GCCCCAGCCG	GCCCTGCTGC	CCGTGCGGCT	CGACCTGCGC	GCCGCGGCCG	19320
	GTGCCACCGC	TCTCCCGGAG	GTCTGCGTG	ACCTGGCCGG	CGTACCGGCG	GACGCCCCGA	19380
55	GCACGCCCGG	GGCCGCGGCG	GGCACCAGGG	ACGAGGACGG	TGCCGTGCGC	CCTGCCCCCG	19440

	CCCCGGCCGA CGCCGCCGGG ACGCTGGCCG CGCGGCTCGC GGGACGTTCC GCACCCGAGC	19500
5	GTACGGCTCT CCTGCTCGAC CTGGTGCGGA CCGAGGTGCG GCGGGTGCTC GGACACGGCG	19560
	ACCCCGCCGC GATCGGCGCC GCCCGACCT TCAAGGACGC CGGATTCGAC TCCCTCACC	19620
	CTGTGACCT CCGCAACCG CTGAACACAC GCACCGGACT GCGGCTGCCC GCGACCTCG	19680
10	TCTTCGACCA CCCCACACCG CTCGCCCTCG CCGAACTCCT GCTCGACGGG CTGGAGGCGG	19740
	CCGGTCCAGC GGAACCGGCC GCTGAGGTCC CGACGAAGC GGCCGGTGCC GAGACCTGT	19800
	CCGGCGTGAT CGACCGGCTG GAACGCAGCC TCGCCGCGAC CGACGACGGC GACGCCCGG	19860
15	TCCGCGCGGC ACGGCGGCTG CGCGGCCTGC TGGACGCGCT CCGCGCCGGT CCGGTGCCG	19920
	CGTCCGGTCC GGATGCCGGA GAGCAGCCCC CCGGTGCGGG CGACGTGGTG ATCGACCGGC	19980
	TCAGGTGCGC CTCCGACGAC GACTTGTTTC ACCTGCTCGA CAGCGACTTC CAGTGAGCCG	20040
20	GACCGCGCCG CGCGCCGACC GCTGAACCGC TCTTCACCCA GACCCACGAG ACCACGCTG	20100
	AGGAGAACCG TGTCTGCGAC CAACGAGGAG AAGTTGCGGG AGTACCTGCG GCGCGCGATG	20160
25	GCCGACCTGC ACAGCGCACG AGAGCGGTTG CGCGAGGTG AGTCGGCGAG CCGTGAGCCG	20220
	ATCGCGATCG TGGGCATGGC GTGCCGTTAC CCGGGCGGTG TGGCGTCGCC GGAGGAGCTG	20280
	TGGGACCTGG TGGCCCGCG TACGGACGCG ATCTCCCCGT TCCCCGTCGA CCGCGGCTGG	20340
30	GACGCCGAGG GTCTGTACGA CCCGAGCCG GGGGTGCCGG GCAAGAGCTA CGTGCGGAG	20400
	GGCGGGTTCC TGCACTCGGC GGCCGAGTTC GACGCGGAGT TCTTCGGGAT CTCGCCCGT	20460
	GAGGCGGCG CGATGGATCC GCAGCAGCGG TTGCTGCTGG AGACGTCGTG GGAGGCGCTG	20520
35	GAGCGGGCCG GGATCGTCCC CGCGTCGCTG CGCGGCACCC GTACCGGCGT CTTACCCGGC	20580
	GTCATGTACC ACGACTACGG CAGCCACCAG GTCGGCACCG CCGCCGATCC CAGTGGACAG	20640
	CTCGGCCTCG GCACCGCGGG GAGCGTCGCC TCGGGCCGGG TGGCGTACAC CCTCGGTCTA	20700
40	CAGGGGCCCG CCGTGACCAT GGACACGGCA TGCTCGTCCT CGCTGGTGGC GTTGACCTG	20760
	GCGGTGCAGT CGTTGCGGCG GGCCGAGTCC GATCTCGCT TGGCCGCGCG GCGACCGTC	20820
45	TTGGCGACGC CCACGGTGTT CGTGGAGTTC TCGCGGCAAC GGGGGCTGGC GGCGACGGA	20880
	CGGTGCAAGG CGTTCGCGGA GGGCGCCGAC GGCACGCGT GGGCCGAGGG CGCCGGTG	20940
	CTGCTGGTGG AGCGGCTCTC CGACGCCCCG CGCAACGGCC ATCGGGTGCT CGCGGTGGTG	21000
50	CGGGGCAGCG CCGTCAACCA GGACGGTGCC AGCAACGGCC TCACCGCACC CAGCGGGCCC	21060
	GCCCAGCAGC GGGTGATCCG TGACGCGCTG GCCGACGCGG GGCTGACGCC CGCCGACGTG	21120
	GACGCGGTG AGGCGCACGG CACCGGCACA CCGCTCGGCG ACCCGATCGA GGCCGGCGCG	21180
55	CTGATGCCCA CCTACGGCAG TGAACGGGTG GGCACCCGC TGTGGCTGGG TTCGCTGAAG	21240

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	TCGAACATCG	GACACACCCA	GGCCGCCGCC	GGAGCCGCCG	GCGTCATCAA	GATGGTGCAG	21300
5	GCGTTACGGC	AGTCCGAGCT	GCCGCGCACC	CTGCACGTCT	ACGCGCCCTC	GGCCAAGGTC	21360
	GAATGGGACG	CGGGCGCCGT	GCAACTGCTC	ACCGGCGTCC	GGCCATGGCC	CCGGCGCGAG	21420
	CACAGGCCCC	GGCGGGCCGC	GGTCTCCGCC	TTCGGCGTCA	GCGGCACCAA	CGCCCACGTC	21480
10	ATCATCGAGG	AACCGCCCGC	GGCCGGTGAC	ACCTCGCCCG	CCGGCGACAC	CCCTGAGCCG	21540
	GGCGAGGCGA	CCGCGTCCCC	CTCCACCGCG	GCCGGGCCGT	CGTCCCCCTC	CGCGGTGGCC	21600
	GGGCCGCTGT	CCCCCTCCTC	CCCGGCCGTG	GTCTGGCCCC	TGTCCGCCGA	GACCGCCCCC	21660
15	GCCCTGCGCG	CCCAGGCCGC	CCGCCTGCGG	GCGCACCTCG	AACGCCTCCC	CGGCACCTCG	21720
	CCGACCGACA	TCGGCCACGC	CCTGGCCGCC	GAACGCGCCG	CCCTCACCCG	ACGCGTCGTG	21780
	CTGCTCGGCG	ACGACGGAGC	CCCGGTGAC	GCACTCGCCG	CCCTCGCCGC	CGGCGAGACC	21840
20	ACCCCCGACG	CCGTCCACGG	CACCGCGCGC	GACATCCGCC	GGGTGCGCTT	CGTGTTCCCC	21900
	GGCCAGGGTT	CCCAGTGGGC	CGGGATGGGC	GCCGAACTGC	TGGACACGGC	CCCGGCCTTC	21960
25	GCCGCCGAAC	TGGACCGCTG	CCAGGGCGCG	CTCTCCCCGT	ACGTGGACTG	GAACCTCGCG	22020
	GACGTGCTGC	GCGGCGCGCC	CGCGGCGCCC	GGCCTCGACC	GGGTGACGCT	CGTCCAGCCG	22080
	GCCACCTTCG	CCGTGATGGT	GGGACTCGCC	GCGCTGTGGC	GCTCCCTCGG	GGTCGAACCC	22140
30	GCCGCCGTCA	TCGGCCACTC	CCAGGGCGAG	ATCGCCCGCG	CCTGCGTGGC	GGGCGCGCTC	22200
	TCCCTGGAGG	ACGCCGCCCC	GATCGTGGCC	CTGCGCTCCC	AGGTCATCGC	CCGCGAACTG	22260
	GCCGGGCGGG	GCGGCATGGC	CTCGGTGGCC	CTGCCCCGGG	CGGAGGTCTA	GGCCCCGCTG	22320
35	GCCGGCGGCG	TCGAGATCGC	CGCCGTCAAC	GGCCCCGGCT	CGACCGTCGT	CTGCGGAGAG	22380
	CCCGGCGCCC	TGGAGGCGTT	GCTCGTCACG	CTGGAGAGCG	AAGGCACCCG	GGTCCGCGCG	22440
40	ATCGACGTCG	ACTACGCGTC	CCACTCCAC	TACGTGAGA	GCATCCGGGC	GGAACCTCGC	22500
	ACCGTCCTCG	GCCCCGTCCG	GCCGCGGAGG	GGCGACGTGC	CCTTCTACTC	CACCGTCGAG	22560
	GCGGCGCTCC	TCGACACCGC	CACCCTGGAC	GCCGACTACT	GGTACCGCAA	CCTGCGCCTC	22620
45	CCGGTGCCT	TCGAGCCGAC	CGTACGCGCC	ATGCTCGACG	ACGGCGTCGA	CGCGTTCTGT	22680
	GAGTGCTCCG	CGCATCCCGT	CCTGACCGTC	GGCGTGCGCC	AGACCGTGA	GAGCGCCGGC	22740
	GGCGCGGTCC	CGGCCCTCGC	TTCGCTGCGC	CGCGACGAGG	GCGGGCTGCG	GCGCTTCCTC	22800
50	ACCTCCGCCG	CCGAGGCCCA	GGTCGTGCGC	GTCCCCGTGG	ACTGGGCGAC	GCTCCGCCCA	22860
	GGCGCCGGCC	GGGTGGACCT	GCCGACCTAC	GCCTTCCAGC	GCGAACGCCA	CTGGGTGCGC	22920
	CCCGCCCGGC	CCGACTCCGC	GGCGACGGCC	GCCACGACCG	GTGACGACGC	CCCGGAGCCC	22980
55	GGAGACCGGC	TCGGCTACCA	CGTCGCGTGG	AAGGGACTGC	GCTCCACCAC	CGGCGGCTGG	23040

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	CGCCCCGGCC	TGCGCCTGCT	GATCGTGCCC	ACCGGGGACC	AGTACACCGC	CCTCGCCGAC	23100
5	ACCCTGGAAC	AGGCGGTGCG	CTCCTTCGGC	GGAACGGTCC	GCCGCGTCGC	CTTCGACCCG	23160
	GCACGCACCG	GACGCGCCGA	GCTGTTCGGC	CTGCTCGAGA	CGGAGATCAA	CGGCGACACC	23220
	GCCGTCACCG	GCGTCGTCTC	GCTGCTCGGA	CTGTGCACCG	ACGGCAGGCC	GGACCACCCC	23280
10	GCCGTGCCCC	TCGCCGTAC	CGCCACCCTC	GCCCTCGTCC	AGGCCCTGGC	CGACCTCGGC	23340
	AGCACCGCAC	CGCTGTGGAC	CGTCACCTGC	GGCGCGGTGC	CCACCGCCCC	CGACGAACTG	23400
	CCGTGCACCG	CCGGTGCCCA	GCTGTGGGGC	CTGGGCCGGG	TGGCCGCGCT	GGAGCTGCCC	23460
15	GAGGTGTGGG	GCGGCCTCAT	CGACCTTCCC	GCGCGGCCCG	ACGCCCGGGT	CCTGGACCGT	23520
	CTCGCCGGCG	TCCTCGCCGA	ACCCGGCGGC	GAGGACCAGA	TCGCCGTACG	GATGGCGGGC	23580
20	GTCTTCGGCC	GCCGGGTCC	GCGGAACCCG	GCCGACTCCC	GGCCCCGGC	CTGGCGCGCC	23640
	CGGGGCACCG	TCCTCATCGC	CGGCGACCTC	ACGACGGTGC	CCGGCCGACT	GGTCCGGTCC	23700
	CTCCTCGAGG	ACGGCGCCGA	CCGCGTGGTG	CTGGCCGAC	CCGACGCCCC	CGCACAGGCC	23760
25	GCCGCCGCCG	GACTGACCGG	CGTCTCCCTC	GTCCCCGTGC	GCTGCGACGT	CACCGACCGC	23820
	GCCGCACTGG	CCGCGCTGCT	CGACGAGCAC	GCGCCCACCG	TCGCCGTGCA	CGCCCCGCCC	23880
	CTGGTGCCCC	TGGCGCCGCT	GCGGGAGACG	GCACCCGGCG	ACATCGCCGC	CGCCCTCGCC	23940
30	GCCAAGACCA	CGGCCGCCCG	CCACCTGGTC	GACCTGGCGC	CGGCCCGGG	CCTCGACGCG	24000
	CTGGTGCTGT	TCTCCTCGGT	CTCCGGAGTG	TGGGGCGGCG	CGGCCAGGG	CGGCTACGCG	24060
	GCCGCCAGCG	CGCACCTCGA	CGCGCTGGCC	GAACGCGCCC	GCGCCGCGGG	GGTGCCCGCG	24120
35	TTCTCCGTGG	CCTGGAGCCC	CTGGGCCCGA	GGCACGCCCC	CCGACGGTGC	CGAGGCGGAG	24180
	TTCTCAGCC	GGCGCGGGCT	GGCTCCCCCTC	GACCCCGACC	AGGCGGTGCG	GACCCCTGCGC	24240
40	CGCATGCTGG	AGCGCGGCAG	CGCCTGCGGT	GCGGTGCGCG	ACGTCGAGTG	GAGCCGGTTC	24300
	GCCGCCTCCT	ACACCTGGGT	GCGTCCCGCC	GTACTCTTCG	ACGACATCCC	GGACGTGCAG	24360
	CGGCTGCGCG	CGGCCGAACT	CGCCCCGAGC	ACCGGAGACT	CGACCACCTC	CGAACTCGTC	24420
45	CGCGAGCTGA	CCGCGCAGTC	CGGCCACAAG	CGGCACGCCA	CCCTGCTGCG	GCTGGTGCGC	24480
	GCACACGCCG	CCGCCGTCC	CGGACAGTCC	TCCGGCGACG	CGGTGAGCAG	CGCCCGCGCC	24540
	TTCCGCGACC	TCGGCTTCGA	CTCGCTGACC	GCCCTCGAAC	TGCGCGACCG	GCTCAGCACC	24600
50	AGCACCGGGC	TCAAAC TGCC	CACCTCCCTG	GTCTTCGACC	ACTCCAGCCC	GGCCGCGCTC	24660
	GCCCCGACCC	TCGGTGAGGA	ACTCCTCGGC	CGGAACGACA	CCGCCGACCG	GGCCGGCCCC	24720
	GACACCCCGG	TACGGACCGA	CGAGCCCATC	GCCATCATCG	GCATGGCCTG	CCGGCTGCCC	24780
55	GGCGGGGTGC	AGTCCCCCGA	GGACCTGTGG	GACCTGCTGA	CCGGTGGGAC	CGACGCCATC	24840

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	ACCCCTTCC	CGACCAACCG	GGGATGGGAC	AACGAGACCC	TCTACGACCC	CGACCCCGAC	24900
5	TCGCCCCGGC	ACCACACCTA	CGTGCGCGAG	GGCGGGTTCC	TGCACGACGC	GGCCGAGTTC	24960
	GACCCCGGCT	TCTTCGGCAT	CAGCCCCCGC	GAGGCCCTGG	CCATGGACCC	GCAGCAGCGG	25020
	CTGATCCTGG	AGACGTCCTG	GGAGTCCTTC	GAACGGGCCG	GCATCGACCC	GGTCGAACTG	25080
10	CGCGGCAGCC	GCACCGGGGT	CTTCGTCTGGC	ACCAACGGAC	AGCACTACGT	GCCGCTCCTC	25140
	CAGGACGGCG	ACGAGAACTT	CGACGGCTAC	ATCGCCACCG	GCAACTCCGC	CAGCGTGATG	25200
	TCCGGCCGGC	TCTCCTACGT	CTTCGGACTG	GAGGGCCCCG	CCGTCACCGT	CGACACCGCC	25260
15	TGCTCGGCCT	CCCTGGCCGC	ACTGCACCTG	GCGGTGCAGT	CACTGCGCCG	CGCGGAATGC	25320
	GACTACGCCC	TCGCCGGCGG	GGCCACGGTG	ATGTCCACCC	CCGAGATGCT	GGTGGAGTTC	25380
	GCCCCTCAGC	GAGCGGTGTC	GCCGGACGGC	CGCAGCAAGG	CGTTGCGGGA	GGCGGCCGAC	25440
20	GGGGTCGGTC	TCGCCGAGGG	AGCCGGGATG	CTGCTCGTGG	AGCGGTGTC	GGAGGCGCAG	25500
	AAGAAGGGCC	ATCCGGTACT	GGCGGTGGTG	CGGGGCAGTG	CCGTCAACCA	GGACGGTGCC	25560
25	AGCAACGGCC	TCACCGCACC	CAGCGGGCCC	GCCCAGCAGC	GGGTGATACG	GGAGGCGCTG	25620
	GCCGACGCGG	GGCTGACGCC	CGCCGACGTG	GACGCGGTCT	AGGCGCACGG	CACCGGCACG	25680
	CCGCTCGGCG	ACCCCATCGA	GGCCGGCGCG	CTGCTCGCCA	CGTACGGCCG	GGACCGGCGC	25740
30	GACGCCCCGC	TGTGGCTGGG	TTCGCTGAAG	TCGAACATCG	GGCACACCCA	GGCCGCCGCC	25800
	GGCGTGGCCG	GGGTGATCAA	GATGGTGTCT	GCGCTGCGCC	ACGGCGAGCT	GCCGCGCACC	25860
	CTGCACGCGT	CGACGGCGTC	GTCCAGGATC	GATTGGGACG	CGGGCGCCGT	GGAGTTGCTG	25920
35	GACGAGGCCA	GGCCCTGGCT	CCAGCGGGCC	GAGGGGCCGC	GCCGGGCGGG	CATCTCCTCG	25980
	TTCGGCATCA	GCGGCACCAA	CGCGCACCTC	GTCATCGAGG	AGCCGCCGGA	GCCCACCGCG	26040
40	CCCGAACTGC	TCGCGCCCGA	ACCGGCCGCC	GACGGCGACG	TCTGGTCCGA	GGAGTGGTGG	26100
	CACGAGGTGA	CCGTGCCCCT	GATGATGTCC	GCGCACAACG	AAGCCGCCCT	GCGCGACCAG	26160
	GCGCGGCGCC	TGCGCGCCGA	CCTGCTCGCC	CACCCCGAGC	TGCACCCGGC	CGACGTCGGC	26220
45	TACACCTCA	TCACCACCCG	CACCCGGTTC	GAGCAGCGGG	CCGCCGTCGT	CGGCGAGAAC	26280
	TTCACGGAGC	TGATCGCGGC	CCTCGACGAC	CTCGTCGAAG	GCCGACCGCA	CCCGCTCGTG	26340
	CTGCGGGGCA	CCGCCGGCAC	CTCCGACCAG	GTCGTGTTCG	TCTTCCCCGG	CCAGGGCTCG	26400
50	CAGTGGCCCG	AGATGGCCGA	CGGGCTGCTG	GCCCCGTCCA	GCGGCTCCGG	CTCCTTCCTG	26460
	GAGACCGCCC	GCGCCTGCGA	CCTCGCGCTC	CGGCCCCACC	TCGGCTGGTC	CGTCCTGGAC	26520
	GTACTGCGCC	GGGAACCCGG	CGCGCCCTCG	CTCGACCGGG	TCGACGTGGT	GCAGCCCGTG	26580
55	CTGTTACCA	TGATGGTCTC	GCTCGCCGAG	ACGTGGCGTT	CGCTGGGCGT	CGAACCGGCC	26640

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	GCGGTCGTCG	GTCACTCCCA	GGGCGAGATC	GCCGCCGCCT	ACGTCGCCCG	CGCCCTGACG	26700
5	CTGGACGACG	CGGCGCGCAT	CGTCGCCCTG	CGCAGCCAGG	CGTGGCTGCG	GCTGGCCGGC	26760
	AAGGGCGGCA	TGGTCGCCGT	GACCCGTGTC	GAACGCGACC	TGCGTCCCCG	CCTGGAGCCC	26820
	TGGAGCGACC	GGCTCGCCGT	CGCCGCCGTC	AACGGCCCCG	AGACCTGCGC	CGTCTCCGGG	26880
10	GACCCGGACG	CCCTGGCGGA	GCTGGTCGCC	GAACTCGGTG	CGGAGGGCGT	GCACGCCCGC	26940
	CCCATCCCCG	GCGTCGACAC	CGCCGGGCAC	TCGCCGCAGG	TCGACACGCT	GGAGGCCAC	27000
	CTGCGGAAGG	TGCTCGCGCC	CGTCGCGCCC	CGCACCTCCG	ACATCCCGTT	CTACTCGACG	27060
15	GTCACCGGAG	GACTGATCGA	CACCGCCGAG	CTGGACGCCG	ACTACTGGTA	CCGCAACATG	27120
	CGCGAGCCGG	TGGAGTTCGA	GCAGGCCACC	CGCGCCCTGA	TCGCCGACGG	CCACGACGTG	27180
	TTCCTGGAGT	CGAGCCCGCA	CCCCATGCTG	GCCGTCTCCC	TCCAGGAGAC	GATCAGCGAC	27240
20	GCCGGTTCCC	CGGCGGCCGT	CCTCGGCACC	CTGCGGCGCG	GCCAGGGCGG	CCCCGCTGG	27300
	CTGGGCGTCG	CCCTCTGCCG	CGCCTACACC	CACGGCCTGG	AGATCGACGC	CGAGGCCATC	27360
	TTCGGCCCCG	ACTCAGCCCA	GGTGGAACTG	CCCACGTACC	CCTTCCAGCG	CGAGCGCTAC	27420
25	TGGTACAGCC	CCGGCCACCG	CGGTGACGAC	CCCGCCTCCC	TCGGTCTGGA	CGCCGTCGAC	27480
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30	CGGCTGGGCG	CCGACACCAC	CCCCTGGCTG	GCCGACCACG	CGCTGCTGGG	GTCGCCGCTG	27600
	CTGCCCCGCG	CCGCCTTCGC	CGACCTGGCG	CTCTGGGCGG	GCCGCCAGGC	CGGCACCGGC	27660
	CGCGTCGAGG	AGCTCACCCT	GGCCGCGCCC	CTGGTGCTGC	CCGGCTCCGG	GGGTGTCCGG	27720
35	CTGCGGCTGA	ACGTCCGGCG	CCCGGGCACC	GACGACGCCC	GCCGCTTCGC	CGTGACGCC	27780
	CGCGCCGAGG	GCGCCACGGA	CTGGACCCTG	CACGCCGAGG	GGCTGCTCAC	CGCGCAGGAC	27840
	ACGGCCGACG	CGCCGGACGC	CTCGGCGGCC	ACCCCGCCCC	CCGGCGCCGA	ACAACTGGAC	27900
40	ATCGGCGACT	TCTACCAGCG	CTTCTCCGAA	CTCGGTTACG	GCTACGGCCC	GTTCTTCCGG	27960
	GGACTGGTGA	GCGCCACCG	CTGCGGCCCC	GACATCCACG	CGGAGGTGCG	GCTGCCCGTC	28020
45	CAGGCGCAGG	GCGACCGGGC	CCGCTTCGGC	ATCCATCCCG	CGCTGCTGGA	CGCGGCGCTG	28080
	CAGACCATGA	GCCTCGGGGG	CTTCTTCCCC	GAGGACGGCC	GCGTCCGCAT	GCCGTTCCGC	28140
	CTGCGCGGCG	TTCGGCTGTA	CCGCGCCGGA	GCCGACCGGC	TGCACGTGCG	CGTCTCGCCC	28200
50	GTCTCCGAGG	ACGCGGTCCG	CATCAGGTGC	GCCGACGGCG	AGGGACGGCC	GGTCGCCGAG	28260
	ATCGAGTCCT	TCATCATGCG	GCCGGTCGAC	CCGGGACAGC	TCCTGGGCGG	CCGCCCGGTC	28320
	GGCGCCGACG	CGCTCTTCCG	CATCGCCTGG	CGGGAATCG	CCGCCGGCCC	GGGCACCCGT	28380
55	ACCGGCGACG	GCACCCCTCC	CCCCTGCGCG	TGGGTGCTGG	CGGGACCCGA	CGCGCTGGGC	28440

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	CTGGCCGAGG	CGGCCGACGC	CCACCTGCCC	GCCGTTCCTG	GCCCGGACGG	CGCACTGCCC	28500
5	TCCCCGACGG	GACGCCCGGC	GCCGGACGCC	GTCGTGTTCC	CGGTCCGTGC	CGGGACCGGC	28560
	GACGTCGCCC	CCGACGCGCA	CACCGTGGCC	TGCCGGGTGC	TGGACCTCGT	CCAGCGCCGG	28620
	CTCGCGGCCC	CGGAGGGCCC	GGACGGCGCC	CGCCTGGTGG	TGGCCACCCG	CGGCGCGGTC	28680
10	GCCGTACGCG	ACGACGCCGA	GGTGGACGAC	CCGGCCGCGG	CCGCCGCGTG	GGGCCTGCTG	28740
	CGCTCCGCGC	AGGCCGAGGA	GCCCGGCCCG	TTCTGTCTCG	TGGACCTGGA	CGACGACCCG	28800
	GCGTCCGCCC	GGGCGCTGAC	CGACGCCCTC	GCCTCCGGCG	AACCGCAGAC	CGCGGTCCGG	28860
15	GCCCGGACGG	TGTACGTGCC	CCGGCTGGAG	CGGGCCGCGG	ACCGCACGGA	CGGGCCGCTC	28920
	ACCCCGCCCC	ACGACGGTGC	CTGGCGGCTG	GGCCGGGGCA	CCGACCTCAC	CCTCGACGGC	28980
	CTCGCCCTGG	TGCCCCCCCC	GGACGCCGAG	GCGCCGCTGG	AGCCCGGCCA	GGTGC GCGTC	29040
20	GCCGTACGCG	CCGCGGGCGT	CAACTTCCGC	GACGCCCTCA	TCGCCCTCGG	CATGTACCCG	29100
	GGCGAGGCGG	AGATGGGAAC	GGAGGGCGCC	GGCACCGTCG	TCGAGGTCCG	CCCCGGCGTC	29160
25	ACCGGTGTTC	CCGTCCGCGA	CCGCGTGCTC	GGCCTGTGGG	ACGGCGGCCT	GGGCCCGCTG	29220
	TGCGTGGCCG	ACCACCGGCT	GCTCGCCCCC	GTCCCGGACG	GCTGGTCCTA	CGCCCAGGCC	29280
	GCCTCGGTCC	CCGCGGTGTT	CCTCAGCGCC	TACTACGGTC	TGGTCACCCT	GGCCGGCCTC	29340
30	AGGCCGGGGG	AGCGGGTGCT	CGTGACCGCC	GCCGCCGGGG	GCGTCGGCAT	GGCCGCGGTG	29400
	CAGATCGCCC	GCCACCTCGG	CGCGGAGGTG	CTGGCCACCG	CGAGCCCCCG	CAAGTGGGAC	29460
	GCCCTGCGCG	CCATGGGCAT	CACCGACGAC	CACCTCGCCT	CCTCCCGCAC	CCTCGACTTC	29520
35	GCGACCGCCT	TCACCGGAGC	GGACGGCAGC	TCCCGCGCGG	ACGTCGTCCT	GAACTCGCTC	29580
	ACCAAGGAGT	TCGTGGACGC	CTCCCTCGGG	CTGCTCCGTC	CGGGCGGCCG	GTTCTGAG	29640
	CTGGGCAAGA	CCGACGTCCG	GGACCCCGAG	CGGATCGCCG	CCGAACACCC	CGGGGTGCGC	29700
40	TACCGGGCGT	TCGACCTCAA	CGAGGCCGGA	CCCGACGCAC	TCGGCCGGCT	GCTGCGGGAA	29760
	CTGATGGACC	TGTTCCGCCG	CGGCGTGCTG	CACCCGCTGC	CCGTGCTCAC	CCACGACGTG	29820
45	CGCCGGGCCG	CGGACGCCCT	GCGCACCATC	AGCCAGGCCC	GGCACACCGG	AAAGCTCGTC	29880
	CTGACCATGC	CGCCCCGCTG	GCACCCGTAC	GGCAGGTCC	TGGTCACCGG	TGGCACCGGC	29940
	GCCCTCGGCA	GCCGCATCGC	CCGCCACCTG	GCGAGCCGGC	ACGGCGTCCG	CCGGCTGCTG	30000
50	ATCGCCGCCC	GCCGGGGCCC	GGACGGCGAG	GGCGCCGCGG	AGCTGGTCGC	CGACCTCGCC	30060
	GCCCTGGGCG	CGTCGGCCAC	CGTGGTCGCC	TGCGACGTCT	CCGACGCGGA	CGCCGTCCGC	30120
	GGACTGCTCG	CCGGCATAAC	GGCCGATCAC	CCGCTGACGG	CGGTGGTGCA	CAGCACCGGC	30180
55	GTCTTCGACG	ACGGCGTGCT	GCCCGGGCTC	ACCCCGAGC	GGATGCGGCG	CGTGCTGCGG	30240

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	CCCAAGGTGG	AGGCCGCCGT	CCACCTGGAC	GAACTCACCC	GCGACCTCGA	CCTGTGGGCG	30300
5	TTCGTCCTCT	TCTCCTCCAG	CGCCGGTCTG	CTGGGCAGCC	CGGCCCAGGG	CAACTACGCG	30360
	GCGGCCAACG	CCACCCTCGA	CGCCCTCGCC	GCCCGGCGCC	GGTCCCTCGG	CCTCCCGTCG	30420
	GTGTCACTCG	CCTGGGGTCT	GTGGTCCGAC	ACCAGCCGGA	TGGCACACGC	ACTGGACCAG	30480
10	GAGAGCCTCC	AGCGGCGCTT	CGCCCGCAGC	GGCTTCCCGC	CCCTGTCCGC	CACGCTGGGC	30540
	GCCGCGCTGT	TCGACGCCGC	CCTGCGGGTC	GACGAGGCCG	TGCAGGTCCC	CATGCGGTTC	30600
	GACCCGGCCG	CGCTGCGCGC	CACCGGAAGC	GTCCCCGCCC	TGCTGTGCGA	CCTCGTCGGG	30660
15	TCCGCCCCGG	CGACCGGGTC	CGCGGCCCCG	GCGTCCGGCC	CCCTTCCGGC	TCCGGACGCC	30720
	GGGACCGTCG	GCGAGCCGCT	CGCCGAGCGG	TTGGCCGGAC	TCTCCGCCGA	GGAACGCCAC	30780
	GACCGGCTGC	TCGGCCTGGT	CGGCGAACAC	GTGGCCGCGG	TACTGGGCCA	CGGCTCCGCC	30840
20	GCCGAGGTCC	GGCCCGACCG	GCCGTTCGCG	GAGGTCGGGT	TCGACTCGCT	CACGGCCGTG	30900
	GAAGTCGCA	ACCGGATGGC	GGCGGTCACC	GGGGTCAGGC	TCCCCGCCAC	CCTGGTCTTC	30960
25	GACCACCCCA	CCCCCGCCGC	GCTGTCTCTG	CACCTCGACG	GCCTGTCTGG	CCCGGCACAG	31020
	CCGGTCACCA	CCACACCGCT	GCTGTCCGAA	CTGGACCGCA	TCGAGGAGGC	CCTGGCCGCC	31080
	CTCACCCCCG	AGCACCTCGC	GGAGCTCGCC	CCCGCCCCCG	ACGACCGGGC	CGAGGTCGCC	31140
30	CTGCGCCTGG	ACGCCCTGGC	CGACCGCTGG	CGCGCCCTGC	ACGACGGCGC	GCCCGGCGCC	31200
	GACGACGACA	TCACCGACGT	GCTGAGCAGC	GCCGACGACG	ACGAGATCTT	CGCGTTCATC	31260
	GACGAGCGGT	ACGGCACGTC	GTGACCGCCG	GCCCGGAGCC	CCGCCCCGTA	TCGAAAGGAA	31320
35	GCACCACCAT	GGCGAACGAA	GAGAAGCTGC	GCGCCTACCT	CAAGCGCGTG	ACGGGTGAGC	31380
	TGCACCGGGC	CACCGAGCAG	CTGCGTGCCC	TGGACCGGCG	GGCCCACGAG	CCGATCGCGA	31440
40	TCGTGCGGGC	GGCCTGCCGA	CTCCCCGGCG	GCGTCGAGAG	TCCGGACGAC	CTGTGGGAGC	31500
	TGCTGCACGC	CGGTGCCGAC	GCGGTCCGCC	CGGCCCCCGC	CGACCGCGGC	TGGGACGTGG	31560
	AGGGAAGGTA	CTCGCCCCGAC	CCCGACACGC	CCGGCACCTC	GTAATGCCGC	GAGGGCGGCT	31620
45	TCGTGCAGGG	GGCCGACCGG	TTCGACCCCG	CCCTCTTCGG	CATCTCGCCC	AACGAGGCGC	31680
	TCACCATGGA	CCCCCAGCAG	CGGCTGCTGC	TGGAGACCTC	CTGGGAGGCG	CTGGAGCGAG	31740
	CCGGTCTGGA	CCCCCAGTCC	CTGGCGGGCA	GCCGGACCGG	CGTGTTCGCC	GGGGCGTGGG	31800
50	AGAGCGGCTA	CCAGAAGGGC	GTCGAAGGGC	TCGAAGCCGA	TCTGGAGGCC	CAACTCCTGG	31860
	CCGGCATCGT	CAGCTTCACC	GCCGGCCGCG	TCGCCTACGC	CCTGGGCCTG	GAGGGCCCCG	31920
	CGCTGACGAT	CGACACGGCC	TGCTCCTCGT	CGCTGGTGGC	ACTGCACCTG	GCGGTGCAGT	31980
55	CATGCGCCG	GGGCGAGTGC	GACCTCGCAC	TGGCGGGCGG	CGCCACGGTC	ATCGCCGACT	32040

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	TCGCGCTCTT	CACCCAGTTC	TCCCGGCAGC	GCGGGCTCGC	CCCCGACGGG	CGGTGCAAGG	32100
5	CCTTCGGTGA	GACGGCCGAC	GGCTTCGGCC	CCGCCGAGGG	CGCGGGGATG	CTGCTGGTCG	32160
	AGCGGCTGTC	GGACGCCCCG	CGCAACGGGC	ACCCGGTGCT	GGCGGTGGTG	CGGGGCAGTG	32220
	CCGTCAACCA	GGACGGTGCG	AGCAATGGGC	TGACGGCGCC	GAGTGGTCCT	GCGCAGCAGC	32280
10	GGGTGATCCG	TGAGGCGCTG	GCCGACGCGG	GGCTGACGCC	CGCCGACGTG	GACGCGGTCTG	32340
	AGGCGCACGG	CACCGGCACC	CCGCTCGGGC	ACCCCATCGA	GGCCGGCGCG	CTCATGGCGA	32400
	CGTACGGGCA	CGAACGGACG	GGCGACCCGC	TGTGGCTGGG	TTCGCTGAAG	TCGAACATCG	32460
15	GGCACACCCA	GGCCGCCGCC	GGCGTGGCCG	GGGTGATCAA	GATGGTGCTG	GCGCTGCGCC	32520
	ACGGTGAGCT	GCCGCGCACC	CTGCACGCGT	CGACGGCGTC	CTCCAGGATC	GAATGGGACG	32580
	CGGGCGCCGT	GGAGTTGCTG	GACGAGGCCA	GGCCCTGGCC	CCGGCGTGCC	GAGGGGCCGC	32640
20	GCCGGGCGGG	CATCTCCTCG	TTCCGCATCA	GCGGCACCAA	CGCGCACCTC	GTCATCGAGG	32700
	AGGAGCCGCC	CGCCCGGCCG	GAGCCCGAGG	AGGCCGCGCA	GCCGCCCGCC	CCGGCCACCA	32760
25	CCGTCTCTCC	GCTGTGCGCC	GCCGGCGCGC	GATCCCTGCG	CGAGCAGGCC	CGCAGGCTCG	32820
	CCGCGCACCT	GGCCGGCCAC	GAGGAGATCA	CCGCCGCCGA	CGCCGCCCGC	TCCGCCGCCA	32880
	CCACCCGTGC	CGCGCTCTCG	CACCGGGCCT	CGGTCTCTGG	CGACGACCGG	CGGGCGCTGA	32940
30	TCGACAGGCT	GACCGCGCTG	GCGGAGGACA	GGAAGGACCC	CGGCGTCACC	GTCGGCGAGG	33000
	CGGGCAGCGG	CCGGCCCCCC	GTCCTCGTCT	TCCCGGGACA	GGGCTCCCAG	TGGACGGGCA	33060
	TGGGCGCCGA	ACTCTTGAGC	AGGGCACCCG	TCTTCCGCGC	CAAGGCCGAG	GAGTGCGCGC	33120
35	GGGCCCTCGC	GGCCACCTC	GACTGGTCGG	TGCTCGACGT	CCTGCGCGAC	GCGCCCGGCG	33180
	CCCCGCCGAT	CGACCGCGCG	GACGTCGTCC	AGCCGACCTT	GTTACCATG	ATGGTCTCCC	33240
	TCGCGGCGCT	GTGGGAGTCC	CACGGTGATC	GGCCCGCCGC	CGTGGTCGGC	CACTCCCAAG	33300
40	GCGAGATCGC	CGCCGCCCAC	GCGGCCGGTG	CCCTGTCCCT	CGACGACGCG	GCCCGCGTGA	33360
	TCGCCGAGCG	CAGCAGGCTC	TGGAAGCGGC	TGGCCGGAAG	CGGCGGCATG	CTCTCCGTGA	33420
45	TGGCCCCGGC	CGACCGGGTC	CGCGAACTGA	TGGAGCCCTG	GGCGGAGCGG	ATGTCCGTGG	33480
	CCGCCGTCAA	CGGCCCGGCC	TCGGTCACCG	TGGCCGGTGA	CGCGCGGGCG	CTGGAGGAGT	33540
	TCGGCGGGCG	GCTCTCCGCC	GCCGGGGTGC	TGCGCTGGCC	CCTCGCCGGC	GTCGACTTCG	33600
50	CCGGACACTC	ACCCCAGGTG	GAGCAGTTCC	GCGCCGAGCT	CCTCGACACG	CTGGGCACCG	33660
	TCCGCCCGAC	CGCCGCCCGG	CTGCCCTTCT	TCTCCACCGT	GACCGCCGCG	GCGCACGAGC	33720
	CCGAAGGCCT	GGACGCCCGC	TACTGGTACC	GGAACATGCG	CGAACCCGTG	GAGTTCGCGT	33780
55	CCACCCTGCG	GACGCTGCTG	CGCGAGGGCC	ACCGCACCTT	CGTCGAGATG	GGCCCGCACC	33840

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	CCCTGCTGGG CGCCGCGATC GACGAGGTCG CCGAGGCCGA GGGCGTGCAC GCCACCGCCC	33900
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	CGTTTCGCCCC CGGAGTACGG GTCGACTGGG ACGCCCTCTT CGAGGGCTCC GGCGCCCGCC	34020
	GGGTCCCCTG GCCCACCTAC GCCTTCAGCC GGGACCGGTA CTGGCTGCCC ACCGCCATCG	34080
10	GCCGGCGCGC CGTCGAGGCG GCCCCGTCG ACGCGTCCGC CCCC GGCGC TACCGCGTCA	34140
	CCTGGACACC CGTGGCATCC GACGACTCCG GCCGGCCCTC CGGGCGCTGG CTGCTGGTGC	34200
	AGACCCCCGG CACCGCGCCG GACGAGGCGG ACACCGCGGC GTCGGCCCTC GGTGCGGCCG	34260
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	GCCGTCCGCA GAGCACCGCA CCGGCGGACG CCTCCCCGCT CGACCCGGGG ACGGCCGCCG	34440
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25	GGGGTCTGGG GCGGGTGGCT GCGTTGGAGG TGCCGGTGCA GTGGGGTGGG TTGGTGGATG	34620
	TGGCGGTGGG GCGGGGTGTG CGTGAGTGGC GTCGTGTGGT GCGTCTGGTT GCGGGGGGTG	34680
	GTGAGGATCA GGTGGCGGTG CGTGGTGGGG GTGTGTTCGG TCGTCGTCTG GTGGGTGTGG	34740
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	TGGGTGGTGT GGGGGGTCTAT GTGGCGCGGT GGTTCGGCGG TTCGGGTGCG GAGCATGTGG	34860
	TGTTGGCCGG GCGTCGGGGT GGTGGGGTTG TGGGGCGGT GGAGTTGGAG CGGGAGTTGG	34920
35	TGGGGTTGGG GCGCAAGGTG ACGTTCGTTT CGTGTGATGT GGGGGATCGG GCGTCGATGG	34980
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	TGGGGGGTAA GCGCGTGGGG GCTGAGTTGT TGGACGAGTT GACGGCGGGT GTGGAGCTGG	35160
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	CCGCGACCTC CGTCGCCTGG GGCCTGTGGG GCGGCGAGGG CATGGGAGCG GACGAAGGCG	35340
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50	CACTGCACAC GGCCTGAAC GAGGGCGACA CCTGCGTCAC GGTGCGCCGAC ATCGACTGGG	35460
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	AGGTCCGCGC GTTGCGCACG CCCGAACCCA CCGTGGACGC CTCGGACGGA CTGCGCCGGC	35580
55	GCGTCGACGC CGCCCTCACC CCGCGCGAGC GCACCAAGGT CCTGGTCGAC CTGGTCCGCA	35640

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	CGGTGGCGGC GGAGGTCCTC GGTACGACG GGATCGGCGG CATCGGCCAC GACGTGGCCT	35700
5	TCCGGGACCT CGGCTTCGAC TCGCTGGCCG CGGTGCGGAT GCGCGGCCGG CTGGCCGAGG	35760
	CGACCCGACT CGTACTGCCC GCGACGGTCA TCTTCGACCA CCCCACCGTG GACCGGCTCG	35820
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10	CCGCCGGGGG GAGGCCCGCG ACCCCACCGC CCGCACCGGA GCCGGCCGTC CACGACGCCG	35940
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	CCGACGGCAC GCCGGCCGAC GCGGGGCCCG ACGCGCGCGC GACCGCCCCC GACGGAGCAC	36060
15	CGGAGCAGTA GCGCGCCCTC ACCGGCGCGC CGACCGGCGG AGCGCCGTAC CGCCGACGCC	36120
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	GGGTGCGCTG CGCACCTCCG TCAAGGAGAC CGAGCGGCTG CGCCGGCACA ACCGGGAGCT	36240
20	CCTGGCCGGC GCGCACGAGC CGGTGCGCAT CGTGGGCATG GCCTGCCGCT ACCCCGGTGG	36300
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50	TGATCCGATC GAGGCGGGTG CGTTGCTGGC CACGTACGGG CGGGAGCGGG TCGGTGATCC	37260
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	CCGGTCGTGG CCGCGGCGGG TGGAGCGGGT GCGGCGGGCC GCGGTGTCGG CGTTCGGGGT	37500
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	GGATCGCTGG CTGATGGTCG AGCATGGGCA GCACACGGAA TGCGCGGACG CCGCGGAACG	39300
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AACGGGAGAT CCGGGCCCCG GGACCGTGGT TCCGCAGCGA ACAGCTGGAC GCCTGGGTGA 42900
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 TGATGCTCAG GCTCCTCGGA GTGCCGGGCC GCGACCGCGC CACCGCCCGC CGGGCACTCG 43260
 15 CCGCCTGCGG CCCCCAGCTC GACGCCCGGA TGGCCCCGCA ACTGCTGACC GTGGCCCGGG 43320
 AGTCCGCCGA CGCCGTCCGC AACTGGCCG ACCTGGTCCC CGAGCTCGTC GCGGAGAAGT 43380
 CCGGGGGCCT CGGGAACGCC GAGCCCCGGC CCGACGACGT GCTCGCCCTC CTCCTGCACG 43440
 20 ACGGCGTCGC CCGCGCGAC GTGAGAGCGA TCGCGTGCT CCTCGCGGTC GGCGCACCCG 43500
 AACCCTCGT CACCGCCGTC GCGCACACGG TCCACCGGCT GCTCGGCCGG CCGGGGGAGT 43560
 GGGAGAGGGC CCGCCGACG CCGGCCCGG CGAACGCCGT CGACCAGGTG CTGCGCGAGC 43620
 25 GCCCCCGGC CCGGCTGGAG AACCGGGTGC GGCACACCGC CCTCGAACTC GGCGGCCGCC 43680
 GGATCACCGC CGACGAGCAC GTCGTGGTGC TGGCCGCCGC CGGACGGGAG ATCCCCGGGC 43740
 CGGAGCCGCT CGGGGGCGCC GACGGACCGC ACCTGGCGCT CGCCCTCCCG CTGATCCGCC 43800
 TGGCCGCCAC CACCGCGGTC CAGGTACAGG CCGGCCGCTT GCGCGCCCTG CCGGCCGAGG 43860
 GACCGCCCTT GACCCGGCCG CGGTCACCGG TCCTGGGCGC CTGCGCCCGC CTCGGGTCC 43920
 35 ACCCGGGATG ACCCGCCGCT CCGTACGCCC CCTCCAGAC CGGAGCCGCT GTGCGCGTCC 43980
 TGCTGACATC CCTCGCCAC AACACCCACT ACTACAGTCT GGTGCCCCTC GCCTGGGCGC 44040
 TCGCGCCGC CGGGCACGAG GTACGGGTGG CGAGCCCGCC CTCCCTCACC GACGTCATCA 44100
 40 CCTCCACCGG TCTGACCGCC GTACGGGTGG GCGACGACCG ACCGGCCGCG GAGCTGCTCG 44160
 CCGAGATGGG CAGAGACCTC GTCCCTACC AGAGGGGCTT CGAGTTCGGT GAGGTGGAGA 44220
 3GCGAGGAGGA GACCACCTGG GAGTACCTGC TCGGCCAGCA GAGCATGATG GCCGCCCTGT 44280
 GCTTCGCCCC GTTCAACGGC GCGGCCAGCA TGGACGAGAT CGTCGACTTC GCCCGTGGCT 44340
 GGCGGCCCGA CCTGGTCGTG TGGGAACCCT GGACCTA 44377

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(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4550 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: unknown

55

(ii) MOLECULE TYPE: peptide

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

	Met	Ser	Gly	Glu	Leu	Ala	Ile	Ser	Arg	Ser	Asp	Asp	Arg	Ser	Asp	Ala	
	1				5					10					15		
10	Val	Ala	Val	Val	Gly	Met	Ala	Cys	Arg	Phe	Pro	Gly	Ala	Pro	Gly	Ile	
				20					25					30			
	Ala	Glu	Phe	Trp	Lys	Leu	Leu	Thr	Asp	Gly	Arg	Asp	Ala	Ile	Gly	Arg	
			35					40					45				
15	Asp	Ala	Asp	Gly	Arg	Arg	Arg	Gly	Met	Ile	Glu	Ala	Pro	Gly	Asp	Phe	
	50						55					60					
	Asp	Ala	Ala	Phe	Phe	Gly	Met	Ser	Pro	Arg	Glu	Ala	Ala	Glu	Thr	Asp	
	65					70				75					80		
20	Pro	Gln	Gln	Arg	Leu	Met	Leu	Glu	Leu	Gly	Trp	Glu	Ala	Leu	Glu	Asp	
					85					90					95		
	Ala	Gly	Ile	Val	Pro	Gly	Ser	Leu	Arg	Gly	Glu	Ala	Val	Gly	Val	Phe	
25				100					105					110			
	Val	Gly	Ala	Met	His	Asp	Asp	Tyr	Ala	Thr	Leu	Leu	His	Arg	Ala	Gly	
			115					120					125				
	Ala	Pro	Val	Gly	Pro	His	Thr	Ala	Thr	Gly	Leu	Gln	Arg	Ala	Met	Leu	
30		130					135					140					
	Ala	Asn	Arg	Leu	Ser	Tyr	Val	Leu	Gly	Thr	Arg	Gly	Pro	Ser	Leu	Ala	
	145					150					155					160	
	Val	Asp	Thr	Ala	Gln	Ser	Ser	Ser	Leu	Val	Ala	Val	Ala	Leu	Ala	Val	
35					165					170					175		
	Glu	Ser	Leu	Arg	Ala	Gly	Thr	Ser	Arg	Val	Ala	Val	Ala	Gly	Gly	Val	
				180					185					190			
	Asn	Leu	Val	Leu	Ala	Asp	Glu	Gly	Thr	Ala	Ala	Met	Glu	Arg	Leu	Gly	
40			195				200						205				
	Ala	Leu	Ser	Pro	Asp	Gly	Arg	Cys	His	Thr	Phe	Asp	Ala	Arg	Ala	Asn	
	210						215					220					
	Gly	Tyr	Val	Arg	Gly	Glu	Gly	Gly	Ala	Ala	Val	Val	Leu	Lys	Pro	Leu	
45		225				230					235				240		
	Ala	Asp	Ala	Leu	Ala	Asp	Gly	Asp	Pro	Val	Tyr	Cys	Val	Val	Arg	Gly	
				245						250					255		
50	Val	Ala	Val	Gly	Asn	Asp	Gly	Gly	Gly	Pro	Gly	Leu	Thr	Ala	Pro	Asp	
				260				265						270			
	Arg	Glu	Gly	Gln	Glu	Ala	Val	Leu	Arg	Ala	Ala	Cys	Ala	Gln	Ala	Arg	
			275					280					285				
55	Val	Asp	Pro	Ala	Glu	Val	Arg	Phe	Val	Glu	Leu	His	Gly	Thr	Gly	Thr	

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	290		295		300												
5	Pro	Val	Gly	Asp	Pro	Val	Glu	Ala	His	Ala	Leu	Gly	Ala	Val	His	Gly	
	305					310					315					320	
	Ser	Gly	Arg	Pro	Ala	Asp	Asp	Pro	Leu	Leu	Val	Gly	Ser	Val	Lys	Thr	
					325					330					335		
10	Asn	Ile	Gly	His	Leu	Glu	Gly	Ala	Ala	Gly	Ile	Ala	Gly	Leu	Val	Lys	
				340					345					350			
	Ala	Ala	Leu	Cys	Leu	Arg	Glu	Arg	Thr	Leu	Pro	Gly	Ser	Leu	Asn	Phe	
			355					360					365				
15	Ala	Thr	Pro	Ser	Pro	Ala	Ile	Pro	Leu	Asp	Gln	Leu	Arg	Leu	Lys	Val	
		370					375					380					
	Gln	Thr	Ala	Ala	Ala	Glu	Leu	Pro	Leu	Ala	Pro	Gly	Gly	Ala	Pro	Leu	
	385					390					395					400	
20	Leu	Ala	Gly	Val	Ser	Ser	Phe	Gly	Ile	Gly	Gly	Thr	Asn	Cys	His	Val	
					405					410					415		
	Val	Leu	Glu	His	Leu	Pro	Ser	Arg	Pro	Thr	Pro	Ala	Val	Ser	Val	Ala	
				420					425					430			
25	Ala	Ser	Leu	Pro	Asp	Val	Pro	Pro	Leu	Leu	Leu	Ser	Ala	Arg	Ser	Glu	
			435					440					445				
	Gly	Ala	Leu	Arg	Ala	Gln	Ala	Val	Arg	Leu	Gly	Glu	Tyr	Val	Glu	Arg	
	450					455						460					
30	Val	Gly	Ala	Asp	Pro	Arg	Asp	Val	Ala	Tyr	Ser	Leu	Ala	Ser	Thr	Arg	
	465					470					475					480	
	Thr	Leu	Phe	Glu	His	Arg	Ala	Val	Val	Pro	Cys	Gly	Gly	Arg	Gly	Glu	
					485					490					495		
35	Leu	Val	Ala	Ala	Leu	Gly	Gly	Phe	Ala	Ala	Gly	Arg	Val	Ser	Gly	Gly	
				500				505						510			
	Val	Arg	Ser	Gly	Arg	Ala	Val	Pro	Gly	Gly	Val	Gly	Val	Leu	Phe	Thr	
			515				520						525				
40	Gly	Gln	Gly	Ala	Gln	Trp	Val	Gly	Met	Gly	Arg	Gly	Leu	Tyr	Ala	Gly	
		530				535						540					
	Gly	Gly	Val	Phe	Ala	Glu	Val	Leu	Asp	Glu	Val	Leu	Ser	Met	Val	Gly	
45	545					550					555				560		
	Glu	Val	Asp	Gly	Arg	Ser	Leu	Arg	Asp	Val	Met	Phe	Gly	Asp	Val	Asp	
				565						570				575			
50	Val	Asp	Ala	Gly	Ala	Gly	Ala	Asp	Ala	Gly	Ala	Gly	Ala	Gly	Ala	Gly	
			580					585					590				
	Val	Gly	Ser	Gly	Ser	Gly	Ser	Val	Gly	Gly	Leu	Leu	Gly	Arg	Thr	Glu	
			595					600					605				
55	Phe	Ala	Gln	Pro	Ala	Leu	Phe	Ala	Leu	Glu	Val	Ala	Leu	Phe	Arg	Ala	
		610					615					620					

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	Leu	Glu	Ala	Arg	Gly	Val	Glu	Val	Ser	Val	Val	Leu	Gly	His	Ser	Val	625		630		635		640
5	Gly	Glu	Val	Ala	Ala	Ala	Tyr	Val	Ala	Gly	Val	Leu	Ser	Leu	Gly	Asp		645		650		655	
	Ala	Val	Arg	Leu	Val	Val	Ala	Arg	Gly	Gly	Leu	Met	Gly	Gly	Leu	Pro		660		665		670	
10	Val	Gly	Gly	Gly	Met	Trp	Ser	Val	Gly	Ala	Ser	Glu	Ser	Val	Val	Arg		675		680		685	
	Gly	Val	Val	Glu	Gly	Leu	Gly	Glu	Trp	Val	Ser	Val	Ala	Ala	Val	Asn		690		695		700	
15	Gly	Pro	Arg	Ser	Val	Val	Leu	Ser	Gly	Asp	Val	Gly	Val	Leu	Glu	Ser	705		710		715	720	
	Val	Val	Ala	Ser	Leu	Met	Gly	Asp	Gly	Val	Glu	Cys	Arg	Arg	Leu	Asp		725		730		735	
20	Val	Ser	His	Gly	Phe	His	Ser	Val	Leu	Met	Glu	Pro	Val	Leu	Gly	Glu		740		745		750	
	Phe	Arg	Gly	Val	Val	Glu	Ser	Leu	Glu	Phe	Gly	Arg	Val	Arg	Pro	Gly		755		760		765	
25	Val	Val	Val	Val	Ser	Gly	Val	Ser	Gly	Gly	Val	Val	Gly	Ser	Gly	Glu		770		775		780	
	Leu	Gly	Asp	Pro	Gly	Tyr	Trp	Val	Arg	His	Ala	Arg	Glu	Ala	Val	Arg	785		790		795	800	
	Phe	Ala	Asp	Gly	Val	Gly	Val	Val	Arg	Gly	Leu	Gly	Val	Gly	Thr	Leu		805		810		815	
35	Val	Glu	Val	Gly	Pro	His	Gly	Val	Leu	Thr	Gly	Met	Ala	Gly	Glu	Cys		820		825		830	
	Leu	Gly	Ala	Gly	Asp	Asp	Val	Val	Val	Val	Pro	Ala	Met	Arg	Arg	Gly		835		840		845	
40	Arg	Ala	Glu	Arg	Glu	Val	Phe	Glu	Ala	Ala	Leu	Ala	Thr	Val	Phe	Thr		850		855		860	
	Arg	Asp	Ala	Gly	Leu	Asp	Ala	Thr	Ala	Leu	His	Thr	Gly	Ser	Thr	Gly	865		870		875	880	
45	Arg	Arg	Ile	Asp	Leu	Pro	Thr	Tyr	Pro	Phe	Gln	Arg	Arg	Thr	His	Trp		885		890		895	
	Ser	Pro	Ala	Leu	Ser	Arg	Pro	Val	Thr	Ala	Asp	Ala	Gly	Ala	Gly	Val		900		905		910	
50	Thr	Ala	Thr	Asp	Ala	Val	Gly	His	Ser	Val	Ser	Pro	Asp	Pro	Glu	Ser		915		920		925	
	Thr	Glu	Gly	Thr	Ser	His	Arg	Asp	Thr	Asp	Asp	Glu	Ala	Asp	Ser	Ala		930		935		940	
55																							

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	Ser Pro Glu Pro Met Ser Pro Glu Asp Ala Val Arg Leu Val Arg Glu	
	945	950 955 960
5	Ser Thr Ala Ala Val Leu Gly His Asp Asp Pro Gly Glu Val Ala Leu	
		965 970 975
	Asp Arg Thr Phe Thr Ser Gln Gly Met Asp Ser Val Thr Ala Val Glu	
		980 985 990
10	Leu Cys Asp Leu Leu Lys Gly Ala Ser Gly Leu Pro Leu Ala Ala Thr	
		995 1000 1005
	Leu Val Tyr Asp Leu Pro Thr Pro Arg Ala Val Ala Glu His Ile Val	
		1010 1015 1020
15	Glu Ala Ala Gly Gly Pro Lys Asp Ser Val Ala Gly Gly Pro Gly Val	
		1025 1030 1035 1040
	Leu Ser Ser Ala Ala Val Gly Val Ser Asp Ala Arg Gly Gly Ser Arg	
		1045 1050 1055
20	Asp Asp Asp Asp Pro Ile Ala Ile Val Gly Val Gly Cys Arg Leu Pro	
		1060 1065 1070
	Gly Gly Val Asp Ser Arg Ala Ala Leu Trp Glu Leu Leu Glu Ser Gly	
		1075 1080 1085
25	Ala Asp Ala Ile Ser Ser Phe Pro Thr Asp Arg Gly Trp Asp Leu Asp	
		1090 1095 1100
	Gly Leu Tyr Asp Pro Glu Pro Gly Thr Pro Gly Lys Thr Tyr Val Arg	
		1105 1110 1115 1120
	Glu Gly Gly Phe Leu His Ser Ala Ala Glu Phe Asp Ala Glu Phe Phe	
		1125 1130 1135
35	Gly Ile Ser Pro Arg Glu Ala Thr Ala Met Asp Pro Gln Gln Arg Leu	
		1140 1145 1150
	Leu Leu Glu Ala Ser Trp Glu Ala Leu Glu Asp Ala Gly Val Leu Pro	
		1155 1160 1165
40	Glu Ser Leu Arg Gly Gly Asp Ala Gly Val Phe Val Gly Ala Thr Ala	
		1170 1175 1180
	Pro Glu Tyr Gly Pro Arg Leu His Glu Gly Ala Asp Gly Tyr Glu Gly	
		1185 1190 1195 1200
45	Tyr Leu Leu Thr Gly Thr Thr Ala Ser Val Ala Ser Gly Arg Ile Ala	
		1205 1210 1215
	Tyr Thr Leu Gly Thr Gly Gly Pro Ala Leu Thr Val Asp Thr Ala Cys	
		1220 1225 1230
50	Ser Ser Ser Leu Val Ala Leu His Leu Ala Val Gln Ala Leu Arg Arg	
		1235 1240 1245
	Gly Glu Cys Gly Leu Ala Leu Ala Gly Gly Ala Thr Val Met Ser Gly	
		1250 1255 1260
55	Pro Gly Met Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp	

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	1265		1270		1275		1280
	Gly Arg Cys Met	Pro Phe Ser Ala Asp	Ala Asp Gly Thr	Ala Trp Ser			
		1285	1290	1295			
5	Glu Gly Val Ala	Val Leu Ala Leu	Glu Arg Leu Ser	Asp Ala Arg Arg			
		1300	1305	1310			
	Ala Gly His Arg	Val Leu Gly Val	Val Arg Gly Ser	Ala Val Asn Gln			
10		1315	1320	1325			
	Asp Gly Ala Ser	Asn Gly Leu Thr	Ala Pro Asn Arg	Ser Ala Gln Glu			
		1330	1335	1340			
	Gly Val Ile Arg	Ala Ala Leu Ala	Asp Ala Gly Leu	Ala Pro Gly Asp			
15		1345	1350	1355	1360		
	Val Asp Ala Val	Glu Ala His Gly	Thr Gly Thr Ala	Leu Gly Asp Pro			
		1365	1370	1375			
	Ile Glu Ala Ser	Ala Leu Leu Ala	Thr Tyr Gly Arg	Glu Arg Val Gly			
20		1380	1385	1390			
	Asp Pro Leu Trp	Leu Gly Ser Leu	Lys Ser Asn Val	Gly His Thr Gln			
		1395	1400	1405			
	Ala Ala Ala Gly	Ala Ala Gly Val	Val Lys Met Leu	Leu Ala Leu Glu			
25		1410	1415	1420			
	His Gly Thr Leu	Pro Arg Thr Leu	His Ala Asp Arg	Pro Ser Thr His			
		1425	1430	1435	1440		
30	Val Asp Trp Ser	Ser Gly Thr Val	Ala Leu Leu Ala	Glu Ala Arg Arg			
		1445	1450	1455			
	Trp Pro Arg Arg	Ser Asp Arg Pro	Arg Arg Ala Ala	Val Ser Ser Phe			
35		1460	1465	1470			
	Gly Ile Ser Gly	Thr Asn Ala His	Leu Ile Ile Glu	Glu Ala Pro Glu			
		1475	1480	1485			
	Trp Val Glu Asp	Ile Asp Gly Val	Ala Ala Pro Asp	Arg Gly Thr Ala			
40		1490	1495	1500			
	Asp Ala Ala Ala	Pro Ser Pro Leu	Leu Leu Ser Ala	Arg Ser Glu Gly			
		1505	1510	1515	1520		
	Ala Leu Arg Ala	Gln Ala Val Arg	Leu Gly Glu Tyr	Val Glu Arg Val			
45		1525	1530	1535			
	Gly Ala Asp Pro	Arg Asp Val Ala	Tyr Ser Leu Ala	Ser Thr Arg Thr			
		1540	1545	1550			
	Leu Phe Glu His	Arg Ala Val Val	Pro Cys Gly Gly	Arg Gly Glu Leu			
50		1555	1560	1565			
	Val Ala Ala Leu	Gly Gly Phe Ala	Ala Gly Arg Val	Ser Gly Gly Val			
		1570	1575	1580			
	Arg Ser Gly Arg	Ala Val Pro Gly	Gly Gly Val Gly	Val Leu Phe Thr	Gly		
55		1585	1590	1595	1600		

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	Gln Gly Ala Gln Trp Val Gly Met Gly Arg Gly Leu Tyr Ala Gly Gly	
	1605	1610 1615
5	Gly Val Phe Ala Glu Val Leu Asp Glu Val Leu Ser Met Val Gly Glu	
	1620	1625 1630
	Val Asp Gly Arg Ser Leu Arg Asp Val Met Phe Gly Asp Val Asp Val	
	1635	1640 1645
10	Asp Ala Gly Ala Gly Ala Asp Ala Gly Ala Gly Ala Gly Ala Gly Val	
	1650	1655 1660
	Gly Ser Gly Ser Gly Ser Val Gly Gly Leu Leu Gly Arg Thr Glu Phe	
	1665	1670 1675 1680
15	Ala Gln Pro Ala Leu Phe Ala Leu Glu Val Ala Leu Phe Arg Ala Leu	
	1685	1690 1695
	Glu Ala Arg Gly Val Glu Val Ser Val Val Leu Gly His Ser Val Gly	
	1700	1705 1710
20	Glu Val Ala Ala Ala Tyr Val Ala Gly Val Leu Ser Leu Gly Asp Ala	
	1715	1720 1725
	Val Arg Leu Val Val Ala Arg Gly Gly Leu Met Gly Gly Leu Pro Val	
	1730	1735 1740
25	Gly Gly Gly Met Trp Ser Val Gly Ala Ser Glu Ser Val Val Arg Gly	
	1745	1750 1755 1760
	Val Val Glu Gly Leu Gly Glu Trp Val Ser Val Ala Ala Val Asn Gly	
	1765	1770 1775
30	Pro Arg Ser Val Val Leu Ser Gly Asp Val Gly Val Leu Glu Ser Val	
	1780	1785 1790
35	Val Ala Ser Leu Met Gly Asp Gly Val Glu Cys Arg Arg Leu Asp Val	
	1795	1800 1805
	Ser His Gly Phe His Ser Val Leu Met Glu Pro Val Leu Gly Glu Phe	
	1810	1815 1820
40	Arg Gly Val Val Glu Ser Leu Glu Phe Gly Arg Val Arg Pro Gly Val	
	1825	1830 1835 1840
	Val Val Val Ser Gly Val Ser Gly Gly Val Val Gly Ser Gly Glu Leu	
	1845	1850 1855
45	Gly Asp Pro Gly Tyr Trp Val Arg His Ala Arg Glu Ala Val Arg Phe	
	1860	1865 1870
	Ala Asp Gly Val Gly Val Val Arg Gly Leu Gly Val Gly Thr Leu Val	
	1875	1880 1885
50	Glu Val Gly Pro His Gly Val Leu Thr Gly Met Ala Gly Glu Cys Leu	
	1890	1895 1900
	Gly Ala Gly Asp Asp Val Val Val Val Pro Ala Met Arg Arg Gly Arg	
	1905	1910 1915 1920
55		

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	Ala Glu Arg Glu Val Phe Glu Ala Ala Leu Ala Thr Val Phe Thr Arg	1925	1930	1935
5	Asp Ala Gly Leu Asp Ala Thr Ala Leu His Thr Gly Ser Thr Gly Arg	1940	1945	1950
	Arg Ile Asp Leu Pro Thr Tyr Pro Phe Gln Arg Asp Arg Tyr Trp Leu	1955	1960	1965
10	Asp Pro Val Arg Thr Ala Val Thr Gly Val Glu Pro Ala Gly Ser Pro	1970	1975	1980
	Ala Asp Ala Arg Ala Thr Glu Arg Gly Arg Ser Thr Thr Ala Gly Ile	1985	1990	1995
15	Arg Tyr Arg Val Ala Trp Gln Pro Ala Val Val Asp Arg Gly Asn Pro	2005	2010	2015
	Gly Pro Ala Gly His Val Leu Leu Leu Ala Pro Asp Glu Asp Thr Ala	2020	2025	2030
20	Asp Ser Gly Leu Ala Pro Ala Ile Ala Arg Glu Leu Ala Val Arg Gly	2035	2040	2045
	Ala Glu Val His Thr Val Ala Val Pro Val Gly Thr Gly Arg Glu Ala	2050	2055	2060
25	Ala Gly Asp Leu Leu Arg Ala Ala Gly Asp Gly Ala Ala Arg Ser Thr	2065	2070	2075
	Arg Val Leu Trp Leu Ala Pro Ala Glu Pro Asp Ala Ala Asp Ala Val	2085	2090	2095
30	Ala Leu Val Gln Ala Leu Gly Glu Ala Val Pro Glu Ala Pro Leu Trp	2100	2105	2110
	Ile Thr Thr Arg Glu Ala Ala Ala Val Arg Pro Asp Glu Thr Pro Ser	2115	2120	2125
35	Val Gly Gly Ala Gln Leu Trp Gly Leu Gly Gln Val Ala Ala Leu Glu	2130	2135	2140
	Leu Gly Arg Arg Trp Gly Gly Leu Ala Asp Leu Pro Gly Ser Ala Ser	2145	2150	2155
40	Pro Ala Val Leu Arg Thr Phe Val Gly Ala Leu Leu Ala Gly Gly Glu	2165	2170	2175
	Asn Gln Phe Ala Val Arg Pro Ser Gly Val His Val Arg Arg Val Val	2180	2185	2190
45	Pro Ala Pro Val Pro Val Pro Ala Ser Ala Arg Thr Val Thr Thr Ala	2195	2200	2205
50	Pro Ala Thr Ala Val Gly Glu Asp Ala Arg Asn Asp Thr Ser Asp Val	2210	2215	2220
	Val Val Pro Asp Asp Arg Trp Ser Ser Gly Thr Val Leu Ile Thr Gly	2225	2230	2235
55				2240

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Gly Thr Gly Ala Leu Gly Ala Gln Val Ala Arg Arg Leu Ala Arg Ser
 2245 2250 2255
 Gly Ala Ala Arg Leu Leu Leu Val Gly Arg Arg Gly Ala Ala Gly Pro
 2260 2265 2270
 5
 Gly Val Gly Glu Leu Val Glu Glu Leu Thr Ala Leu Gly Ser Glu Val
 2275 2280 2285
 Ala Val Glu Ala Cys Asp Val Ala Asp Arg Asp Ala Leu Ala Ala Leu
 2290 2295 2300
 10
 Leu Ala Gly Leu Pro Glu Glu Arg Pro Leu Val Ala Val Leu His Ala
 2305 2310 2315 2320
 Ala Gly Val Leu Asp Asp Gly Val Leu Asp Ser Leu Thr Ser Asp Arg
 2325 2330 2335
 15
 Val Asp Ala Val Leu Arg Asp Lys Val Thr Ala Ala Arg His Leu Asp
 2340 2345 2350
 Glu Leu Thr Ala Asp Leu Pro Leu Asp Ala Phe Val Leu Phe Ser Ser
 2355 2360 2365
 20
 Ile Val Gly Val Trp Gly Asn Gly Gly Gln Ala Val Tyr Ala Ala Ala
 2370 2375 2380
 25
 Asn Ala Ala Leu Asp Ala Leu Ala Gln Arg Arg Arg Ala Arg Gly Ala
 2385 2390 2395 2400
 Arg Ala Ala Ser Ile Ala Trp Gly Pro Trp Ala Gly Ala Gly Met Ala
 2405 2410 2415
 30
 Ser Gly Thr Ala Ala Lys Ser Phe Glu Arg Asp Gly Val Thr Ala Leu
 2420 2425 2430
 Asp Pro Glu Arg Ala Leu Asp Val Leu Asp Asp Val Val Gly Ala Gly
 2435 2440 2445
 35
 Gly Thr Ser Ala Ala Gly Thr His Ala Ala Gly Glu Ser Ser Leu Leu
 2450 2455 2460
 Val Ala Asp Val Asp Trp Glu Thr Phe Val Gly Arg Ser Val Thr Arg
 2465 2470 2475 2480
 40
 Arg Thr Trp Ser Leu Phe Asp Gly Val Ser Ala Ala Arg Ser Ala Arg
 2485 2490 2495
 Ala Gly His Ala Ala Asp Asp Arg Ala Ala Leu Thr Pro Gly Thr Arg
 2500 2505 2510
 45
 Pro Gly Asp Gly Ala Pro Gly Gly Ser Gly Gln Asp Gly Gly Glu Gly
 2515 2520 2525
 50
 Arg Pro Trp Leu Ser Val Gly Pro Ser Pro Ala Glu Arg Arg Arg Ala
 2530 2535 2540
 Leu Leu Thr Leu Val Arg Ser Glu Ala Ala Gly Ile Leu Arg His Ala
 2545 2550 2555 2560
 55
 Ser Ala Asp Ala Val Asp Pro Glu Leu Ala Phe Arg Ser Ala Gly Phe

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	2565	2570	2575
5	Asp Ser Leu Thr Val Leu Glu Leu 2580	Arg Asn Arg Leu Thr 2585	Ala Ala Thr 2590
	Gly Leu Asn Leu Pro Asn Thr Leu Leu Phe 2595	Asp His Pro Thr Pro Leu 2600	
	Ser Leu Ala Ser His Leu His Asp Glu Leu Phe 2610	Gly Pro Asp Ser Glu 2615	
10	Ala Glu Pro Ala Ala Ala Ala Pro Thr Pro 2625	Val Met Ala Asp Glu Arg 2630	
	Glu Pro Ile Ala Ile Val Gly Met Ala Cys Arg Tyr Pro 2645	Gly Gly Val 2650	
15	Ala Ser Pro Asp Asp Leu Trp Asp Leu Val Ala Gly Asp 2660	Gly His Thr 2665	
	Leu Ser Pro Phe Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr 2675		
20	Asp Pro Glu Pro Gly Val Pro Gly Lys Ser Tyr Val Arg Glu Gly Gly 2690		
	Phe Leu Arg Ser Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser 2705		
25	Pro Arg Glu Ala Thr Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu 2710		
	Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile Val Pro Asp Ser Leu 2725		
30	Arg Gly Thr Arg Thr Gly Val Phe Ser Gly Ile Ser Gln Gln Asp Tyr 2730		
	Ala Thr Gln Leu Gly Asp Ala Ala Asp Thr Tyr Gly Gly His Val Leu 2740		
35	Thr Gly Thr Leu Gly Ser Val Ile Ser Gly Arg Val Ala Tyr Ala Leu 2755		
	Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser Ser 2760		
40	Leu Val Ala Leu His Leu Ala Val Gln Ser Leu Arg Arg Gly Glu Cys 2770		
	Asp Leu Ala Leu Ala Gly Gly Val Thr Val Met Ala Thr Pro Thr Val 2780		
45	Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp Gly Arg Cys 2785		
	Lys Ala Phe Ala Glu Gly Ala Asp Gly Thr Ala Trp Ala Glu Gly Val 2790		
50	Gly Val Leu Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Asn Gly His 2800		
55			

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Arg Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala
2900 2905 2910

5 Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ala Gln Gln Arg Val Ile
2915 2920 2925

Arg Glu Ala Leu Ala Asp Ala Gly Leu Val Pro Ala Asp Val Asp Val
2930 2935 2940

10 Val Glu Ala His Gly Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Ala
2945 2950 2955 2960
Gly Ala Leu Leu Ala Thr Tyr Gly Arg Glu Arg Val Gly Asp Pro Leu
2965 2970 2975

15 Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ala
2980 2985 2990

Gly Val Gly Gly Val Ile Lys Val Val Gln Gly Met Arg His Gly Ser
2995 3000 3005

20 Leu Pro Arg Thr Leu His Val Asp Ala Pro Ser Ser Lys Val Glu Trp
3010 3015 3020

Ala Ser Gly Ala Val Glu Leu Leu Thr Glu Thr Arg Ser Trp Pro Arg
3025 3030 3035 3040

25 Arg Val Glu Arg Val Arg Arg Ala Ala Val Ser Ala Phe Gly Val Ser
3045 3050 3055

Gly Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala Glu Ala Gly
3060 3065 3070

30 Ser Glu His Gly Asp Gly Pro Glu Pro Glu Arg Pro Asp Ala Val Thr
3075 3080 3085

Gly Pro Leu Ser Trp Val Leu Ser Ala Arg Ser Glu Gly Ala Leu Arg
3090 3095 3100

35 Ala Gln Ala Val Arg Leu Arg Glu Cys Val Glu Arg Val Gly Ala Asp
3105 3110 3115 3120

40 Pro Arg Asp Val Ala Gly Ser Leu Val Val Ser Arg Ala Ser Phe Gly
3125 3130 3135

Glu Arg Ala Val Val Val Gly Arg Gly Arg Glu Glu Leu Leu Ala Gly
3140 3145 3150

45 Leu Asp Val Val Ala Ala Gly Ala Pro Val Gly Val Ser Ser Gly Ala
3155 3160 3165

Gly Ala Val Val Arg Gly Ser Ala Val Arg Gly Arg Gly Val Gly Val
3170 3175 3180

50 Leu Phe Thr Gly Gln Gly Ala Gln Trp Val Gly Met Gly Arg Gly Leu
3185 3190 3195 3200

Tyr Ala Gly Gly Gly Val Phe Ala Glu Val Leu Asp Glu Val Leu Ser
3205 3210 3215

55

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Val Val Gly Glu Val Asp Gly Arg Ser Leu Arg Asp Val Met Phe Ala
3220 3225 3230

5 Asp Ala Asp Ser Val Leu Gly Gly Leu Leu Gly Arg Thr Glu Phe Ala
3235 3240 3245

Gln Pro Ala Leu Phe Ala Leu Glu Val Ala Leu Phe Arg Ala Leu Glu
3250 3255 3260

10 Ala Arg Gly Val Glu Val Ser Val Val Leu Gly His Ser Val Gly Glu
3265 3270 3275 3280

Val Ala Ala Ala Tyr Val Ala Gly Val Leu Ser Leu Gly Asp Ala Val
3285 3290 3295

15 Arg Leu Val Val Ala Arg Gly Gly Leu Met Gly Gly Leu Pro Val Gly
3300 3305 3310

Gly Gly Met Trp Ser Val Gly Ala Ser Glu Ser Val Val Arg Gly Val
3315 3320 3325

20 Val Glu Gly Leu Gly Glu Trp Val Ser Val Ala Ala Val Asn Gly Pro
3330 3335 3340

Arg Ser Val Val Leu Ser Gly Asp Val Gly Val Leu Glu Ser Val Val
3345 3350 3355 3360

25 Val Thr Leu Met Gly Asp Gly Val Glu Cys Arg Arg Leu Asp Val Ser
3365 3370 3375

His Gly Phe His Ser Val Leu Met Glu Pro Val Leu Gly Glu Phe Arg
3380 3385 3390

30 Gly Val Val Glu Ser Leu Glu Phe Gly Arg Val Arg Pro Gly Val Val
3395 3400 3405

Val Val Ser Gly Val Ser Gly Gly Val Val Gly Ser Gly Glu Leu Gly
3410 3415 3420

35 Asp Pro Gly Tyr Trp Val Arg His Ala Arg Glu Ala Val Arg Phe Ala
3425 3430 3435 3440

40 Asp Gly Val Gly Val Val Arg Gly Leu Gly Val Gly Thr Leu Val Glu
3445 3450 3455

Val Gly Pro His Gly Val Leu Thr Gly Met Ala Gly Gln Cys Leu Glu
3460 3465 3470

45 Ala Gly Asp Asp Val Val Val Val Pro Ala Met Arg Arg Gly Arg Pro
3475 3480 3485

Glu Arg Glu Val Phe Glu Ala Ala Leu Ala Thr Val Phe Thr Arg Asp
3490 3495 3500

50 Ala Gly Leu Asp Ala Thr Thr Leu His Thr Gly Ser Thr Gly Arg Arg
3505 3510 3515 3520

Ile Asp Leu Pro Thr Tyr Pro Phe Gln His Asn Arg Tyr Trp Ala Thr
3525 3530 3535

55 Gly Ser Val Thr Gly Ala Thr Gly Thr Ser Ala Ala Ala Arg Phe Gly

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	3540	3545	3550
5	Leu Glu Trp Lys Asp His Pro Phe Leu Ser Gly Ala Thr Pro Ile Ala 3555 3560 3565		
	Gly Ser Gly Ala Leu Leu Leu Thr Gly Arg Val Gly Leu Ala Ala His 3570 3575 3580		
10	Pro Trp Leu Ala Asp His Ala Ile Ser Gly Thr Val Leu Leu Pro Gly 3585 3590 3595 3600		
	Thr Ala Ile Ala Asp Leu Leu Leu Arg Ala Val Glu Glu Val Gly Ala 3605 3610 3615		
15	Gly Gly Val Glu Glu Leu Thr Leu His Glu Pro Leu Leu Leu Pro Glu 3620 3625 3630		
	Arg Gly Gly Leu His Val Gln Val Leu Val Glu Ala Ala Asp Glu Gln 3635 3640 3645		
20	Gly Arg Arg Ala Val Ala Val Ala Ala Arg Pro Glu Gly Pro Gly Arg 3650 3655 3660		
	Asp Gly Glu Glu Gln Glu Trp Thr Arg His Ala Glu Gly Val Leu Thr 3665 3670 3675 3680		
25	Ser Thr Glu Thr Ala Val Pro Asp Met Gly Trp Ala Ala Gly Ala Trp 3685 3690 3695		
	Pro Pro Pro Gly Ala Glu Pro Ile Asp Val Glu Glu Leu Tyr Asp Ala 3700 3705 3710		
30	Phe Ala Ala Asp Gly Tyr Gly Tyr Gly Pro Ala Phe Thr Ala Leu Ser 3715 3720 3725		
	Gly Val Trp Arg Leu Gly Asp Glu Leu Phe Ala Glu Val Arg Arg Pro 3730 3735 3740		
35	Ala Gly Gly Ala Gly Thr Thr Gly Asp Gly Phe Gly Val His Pro Ala 3745 3750 3755 3760		
	Leu Phe Asp Ala Ala Leu His Pro Trp Arg Ala Gly Gly Leu Leu Pro 3765 3770 3775		
40	Asp Thr Gly Gly Thr Thr Trp Ala Pro Phe Ser Trp Gln Gly Ile Ala 3780 3785 3790		
45	Leu His Thr Thr Gly Ala Glu Thr Leu Arg Val Arg Leu Ala Pro Ala 3795 3800 3805		
	Ala Gly Gly Thr Glu Ser Ala Phe Ser Val Gln Ala Ala Asp Pro Ala 3810 3815 3820		
50	Gly Thr Pro Val Leu Thr Leu Asp Ala Leu Leu Leu Arg Pro Val Thr 3825 3830 3835 3840		
	Leu Gly Arg Ala Asp Ala Pro Gln Pro Leu Tyr Arg Val Asp Trp Gln 3845 3850 3855		
55	Pro Val Gly Gln Gly Thr Glu Ala Ser Gly Ala Gln Gly Trp Thr Val 3860 3865 3870		

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Leu Gly Gln Ala Ala Ala Glu Thr Val Ala Gln Pro Ala Ala His Ala,
3875 3880 3885

5 Asp Leu Thr Ala Leu Arg Thr Ala Val Ala Ala Ala Gly Thr Pro Val
3890 3895 3900

Pro Arg Leu Val Val Val Ser Pro Val Asp Thr Arg Leu Asp Glu Gly
3905 3910 3915 3920

10 Pro Val Leu Ala Asp Ala Glu Ala Arg Ala Arg Ala Gly Asp Gly Trp
3925 3930 3935

Asp Asp Asp Pro Leu Arg Val Ala Leu Gly Arg Gly Leu Thr Leu Val
3940 3945 3950

15 Arg Glu Trp Val Glu Asp Glu Arg Leu Ala Asp Ser Arg Leu Val Val
3955 3960 3965

Leu Thr Arg Gly Ala Val Ala Ala Gly Pro Gly Asp Val Pro Asp Leu
3970 3975 3980

20 Thr Gly Ala Ala Leu Trp Gly Leu Leu Arg Ser Ala Gln Ser Glu Tyr
3985 3990 3995 4000

Pro Asp Arg Phe Thr Leu Ile Asp Val Asp Asp Ser Pro Glu Ser Arg
4005 4010 4015

25 Ala Ala Leu Pro Arg Ala Leu Gly Ser Ala Glu Arg Gln Leu Ala Leu
4020 4025 4030

Arg Thr Gly Asp Val Leu Ala Pro Ala Leu Val Pro Met Ala Thr Arg
4035 4040 4045

30 Pro Ala Glu Thr Thr Pro Ala Thr Ala Val Ala Ser Ala Thr Thr Gln
4050 4055 4060

Thr Gln Val Thr Ala Pro Ala Pro Asp Asp Pro Ala Ala Asp Ala Val
4065 4070 4075 4080

Phe Asp Pro Ala Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Ala Leu
4085 4090 4095

40 Gly Arg Arg Val Ala Ser His Leu Ala Arg Arg Tyr Gly Val Arg His
4100 4105 4110

Met Leu Leu Val Ser Arg Arg Gly Pro Asp Ala Pro Glu Ala Gly Pro
4115 4120 4125

45 Leu Glu Arg Glu Leu Ala Gly Leu Gly Val Thr Ala Thr Phe Leu Ala
4130 4135 4140

Cys Asp Leu Thr Asp Ile Glu Ala Val Arg Lys Ala Val Ala Ala Val
4145 4150 4155 4160

50 Pro Ser Asp His Pro Leu Thr Gly Val Val His Thr Ala Gly Val Leu
4165 4170 4175

Asp Asp Gly Ala Leu Thr Gly Leu Thr Arg Gln Arg Leu Asp Thr Val
4180 4185 4190

55

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Leu Arg Pro Lys Ala Asp Ala Val Arg Asn Leu His Glu Ala Thr Leu
 4195 4200 4205
 5 Asp Arg Pro Leu Arg Ala Phe Val Leu Phe Ser Ala Ala Ala Gly Leu
 4210 4215 4220
 Leu Gly Arg Pro Gly Gln Ala Ser Tyr Ala Ala Ala Asn Ala Val Leu
 4225 4230 4235 4240
 10 Asp Ala Leu Ala Gly Ala Arg Arg Ala Ala Gly Leu Pro Ala Val Ser
 4245 4250 4255
 Leu Ala Trp Gly Leu Trp Asp Glu Gln Thr Gly Met Ala Gly Gly Leu
 4260 4265 4270
 15 Asp Glu Met Ala Leu Arg Val Leu Arg Arg Asp Gly Ile Ala Ala Met
 4275 4280 4285
 Pro Pro Glu Gln Gly Leu Glu Leu Leu Asp Leu Ala Leu Thr Gly His
 4290 4295 4300
 20 Arg Asp Gly Pro Ala Val Leu Val Pro Leu Leu Leu Asp Gly Ala Ala
 4305 4310 4315 4320
 Leu Arg Arg Thr Ala Lys Glu Arg Gly Ala Ala Thr Met Ser Pro Leu
 4325 4330 4335
 25 Leu Arg Ala Leu Leu Pro Ala Ala Leu Arg Arg Ser Gly Gly Ala Gly
 4340 4345 4350
 Ala Pro Ala Ala Ala Asp Arg His Gly Lys Glu Ala Asp Pro Gly Ala
 4355 4360 4365
 30 Gly Arg Leu Ala Gly Met Val Ala Leu Glu Ala Ala Glu Arg Ser Ala
 4370 4375 4380
 Ala Val Leu Glu Leu Val Thr Glu Gln Val Ala Glu Val Leu Gly Tyr
 4385 4390 4395 4400
 35 Ala Ser Ala Ala Glu Ile Glu Pro Glu Arg Pro Phe Arg Glu Ile Gly
 4405 4410 4415
 Val Asp Ser Leu Ala Ala Val Glu Leu Arg Asn Arg Leu Ser Arg Leu
 4420 4425 4430
 40 Val Gly Leu Arg Leu Pro Thr Thr Leu Ser Phe Asp His Pro Thr Pro
 4435 4440 4445
 Lys Asp Met Ala Gln His Ile Asp Gly Gln Leu Pro Arg Pro Ala Gly
 4450 4455 4460
 45 Ala Ser Pro Ala Asp Ala Ala Leu Glu Gly Ile Gly Asp Leu Ala Arg
 4465 4470 4475 4480
 Ala Val Ala Leu Leu Gly Thr Gly Asp Ala Arg Arg Ala Glu Val Arg
 4485 4490 4495
 50 Glu Gln Leu Val Gly Leu Leu Ala Ala Leu Asp Pro Pro Gly Arg Thr
 4500 4505 4510
 55 Gly Thr Ala Ala Pro Gly Val Pro Ser Gly Ala Asp Gly Ala Glu Pro

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4515 4520 4525
 Thr Val Thr Asp Arg Leu Asp Glu Ala Thr Asp Asp Glu Ile Phe Ala
 4530 4535 4540
 Phe Leu Asp Glu Gln Leu
 4545 4550

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1996 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Met Thr Ala Glu Asn Asp Lys Ile Arg Ser Tyr Leu Lys Arg Ala Thr
 1 5 10 15
 Ala Glu Leu His Arg Thr Lys Ser Arg Leu Ala Glu Val Glu Ser Ala
 20 25 30
 Ser Arg Glu Pro Ile Ala Ile Val Gly Met Ala Cys Arg Tyr Pro Gly
 35 40 45
 Gly Val Ala Ser Pro Asp Asp Leu Trp Asp Leu Val Ala Ala Gly Thr
 50 55 60
 Asp Ala Val Ser Ala Phe Pro Val Asp Arg Gly Trp Asp Val Glu Gly
 65 70 75 80
 Leu Tyr Asp Pro Asp Pro Glu Ala Val Gly Arg Ser Tyr Val Arg Glu
 85 90 95
 Gly Gly Phe Leu His Ser Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly
 100 105 110
 Ile Ser Pro Arg Glu Ala Ala Ala Met Asp Pro Gln Gln Arg Leu Leu
 115 120 125
 Leu Glu Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile Val Pro Ala
 130 135 140
 Ser Leu Arg Gly Thr Arg Thr Gly Val Phe Thr Gly Val Met Tyr Asp
 145 150 155 160
 Asp Tyr Gly Ser Arg Phe Asp Ser Ala Pro Pro Glu Tyr Glu Gly Tyr
 165 170 175
 Leu Val Asn Gly Ser Ala Gly Ser Ile Ala Ser Gly Arg Val Ala Tyr
 180 185 190
 Ala Leu Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser
 195 200 205
 Ser Ser Leu Val Ala Leu His Leu Ala Val Gln Ser Leu Arg Arg Gly

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	210		215		220
5	Glu Cys Asp Leu Ala	Leu Ala Gly Gly Val	Thr Val Met Ala Thr Pro		
	225	230	235		240
	Thr Val Leu Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp Gly				
		245	250		255
10	Arg Cys Lys Ala Phe Ala Glu Gly Ala Asp Gly Thr Ala Trp Ala Glu				
		260	265		270
	Gly Val Gly Val Leu Leu Val Glu Arg Leu Ser Asp Ala Arg Arg Asn				
		275	280		285
15	Gly His Arg Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp				
		290	295		300
	Gly Ala Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ala Gln Gln Arg				
		305	310		315
20	Val Ile Arg Glu Ala Leu Ala Asp Ala Gly Leu Thr Pro Ala Asp Val				
		325	330		335
	Asp Ala Val Glu Ala His Gly Thr Gly Thr Pro Leu Gly Asp Pro Ile				
		340	345		350
25	Glu Ala Gly Ala Leu Leu Ala Thr Tyr Gly Ser Glu Arg Gln Gly Gln				
		355	360		365
	Gly Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Ala Gln				
		370	375		380
30	Ala Ala Ala Gly Val Gly Gly Val Ile Lys Val Val Gln Ala Met Arg				
		385	390		395
	His Gly Ser Leu Pro Arg Thr Leu His Val Asp Ala Pro Ser Ser Lys				
		405	410		415
35	Val Glu Trp Ala Ser Gly Ala Val Glu Leu Leu Thr Glu Thr Arg Ser				
		420	425		430
	Trp Pro Arg Arg Val Glu Arg Val Arg Arg Ala Ala Val Ser Ala Phe				
		435	440		445
40	Gly Val Ser Gly Thr Asn Ala His Val Val Leu Glu Glu Ala Pro Ala				
		450	455		460
	Glu Ala Gly Ser Glu His Gly Asp Gly Pro Glu Pro Glu Arg Pro Asp				
		465	470		475
45	Ala Val Thr Gly Pro Leu Ser Trp Val Leu Ser Ala Arg Ser Glu Gly				
		485	490		495
	Ala Leu Arg Ala Gln Ala Val Arg Leu Arg Glu Cys Val Glu Arg Val				
		500	505		510
50	Gly Ala Asp Pro Arg Asp Val Ala Gly Ser Leu Val Val Ser Arg Ala				
		515	520		525
55	Ser Phe Gly Glu Arg Ala Val Val Val Gly Arg Gly Arg Glu Glu Leu				
		530	535		540

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	Leu	Ala	Gly	Leu	Asp	Val	Val	Ala	Ala	Gly	Ala	Pro	Val	Gly	Val	Ser	
	545					550					555					560	
5	Gly	Gly	Val	Ser	Ser	Gly	Ala	Gly	Ala	Val	Val	Arg	Gly	Ser	Ala	Val	
				565						570					575		
	Arg	Gly	Arg	Gly	Val	Gly	Val	Leu	Phe	Thr	Gly	Gln	Gly	Ala	Gln	Trp	
				580					585					590			
10	Val	Gly	Met	Gly	Arg	Gly	Leu	Tyr	Ala	Gly	Gly	Gly	Val	Phe	Ala	Glu	
			595					600					605				
	Val	Leu	Asp	Glu	Val	Leu	Ser	Val	Val	Gly	Glu	Val	Gly	Gly	Trp	Ser	
		610					615					620					
15	Leu	Arg	Asp	Val	Met	Phe	Gly	Asp	Val	Asp	Val	Asp	Ala	Gly	Ala	Gly	
	625					630					635					640	
	Ala	Asp	Ala	Gly	Val	Gly	Ser	Gly	Val	Gly	Val	Gly	Gly	Leu	Leu	Gly	
20					645					650						655	
	Arg	Thr	Glu	Phe	Ala	Gln	Pro	Ala	Leu	Phe	Ala	Leu	Glu	Val	Ala	Leu	
				660					665					670			
	Phe	Arg	Ala	Leu	Glu	Ala	Arg	Gly	Val	Glu	Val	Ser	Val	Val	Leu	Gly	
25			675					680					685				
	His	Ser	Val	Gly	Glu	Val	Ala	Ala	Ala	Tyr	Val	Ala	Gly	Val	Leu	Ser	
		690					695					700					
30	Leu	Gly	Asp	Ala	Val	Arg	Leu	Val	Val	Ala	Arg	Gly	Gly	Leu	Met	Gly	
	705					710					715					720	
	Gly	Leu	Pro	Val	Gly	Gly	Gly	Met	Trp	Ser	Val	Gly	Ala	Ser	Glu	Ser	
					725					730					735		
35	Val	Val	Arg	Gly	Val	Val	Glu	Gly	Leu	Gly	Glu	Trp	Val	Ser	Val	Ala	
				740					745					750			
	Ala	Val	Asn	Gly	Pro	Arg	Ser	Val	Val	Leu	Ser	Gly	Asp	Val	Gly	Val	
			755					760					765				
40	Leu	Glu	Ser	Val	Val	Ala	Ser	Leu	Met	Gly	Asp	Gly	Val	Glu	Cys	Arg	
		770					775					780					
	Arg	Leu	Asp	Val	Ser	His	Gly	Phe	His	Ser	Val	Leu	Met	Glu	Pro	Val	
		785				790					795					800	
45	Leu	Gly	Glu	Phe	Arg	Gly	Val	Val	Glu	Ser	Leu	Glu	Phe	Gly	Arg	Val	
					805					810					815		
	Arg	Pro	Gly	Val	Val	Val	Val	Ser	Ser	Val	Ser	Gly	Gly	Val	Val	Gly	
				820					825					830			
50	Ser	Gly	Glu	Leu	Gly	Asp	Pro	Gly	Tyr	Trp	Val	Arg	His	Ala	Arg	Glu	
			835					840					845				
	Ala	Val	Arg	Phe	Ala	Asp	Gly	Val	Gly	Val	Val	Arg	Gly	Leu	Gly	Val	
55			850				855					860					

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	Gly	Thr	Leu	Val	Glu	Val	Gly	Pro	His	Gly	Val	Leu	Thr	Gly	Met	Ala	865	870	875	880
5	Gly	Glu	Cys	Leu	Gly	Ala	Gly	Asp	Asp	Val	Val	Val	Val	Pro	Ala	Met	885	890	895	
	Arg	Arg	Gly	Arg	Ala	Glu	Arg	Glu	Val	Phe	Glu	Ala	Ala	Leu	Ala	Thr	900	905	910	
10	Val	Phe	Thr	Arg	Asp	Ala	Gly	Leu	Asp	Ala	Thr	Thr	Leu	His	Thr	Gly	915	920	925	
	Ser	Thr	Gly	Arg	Arg	Ile	Asp	Leu	Pro	Thr	Tyr	Pro	Phe	Gln	His	Asp	930	935	940	
15	Arg	Tyr	Trp	Leu	Ala	Ala	Pro	Ser	Arg	Pro	Arg	Thr	Asp	Gly	Leu	Ser	945	950	955	960
	Ala	Ala	Gly	Leu	Arg	Glu	Val	Glu	His	Pro	Leu	Leu	Thr	Ala	Ala	Val	965	970	975	
20	Glu	Leu	Pro	Gly	Thr	Asp	Thr	Glu	Val	Trp	Thr	Gly	Arg	Ile	Ser	Ala	980	985	990	
	Ala	Asp	Leu	Pro	Trp	Leu	Ala	Asp	His	Leu	Val	Trp	Asp	Arg	Gly	Val	995	1000	1005	
25	Val	Pro	Gly	Thr	Ala	Leu	Leu	Glu	Thr	Val	Leu	Gln	Val	Gly	Ser	Arg	1010	1015	1020	
30	Ile	Gly	Leu	Pro	Arg	Val	Ala	Glu	Leu	Val	Leu	Glu	Thr	Pro	Leu	Thr	1025	1030	1035	1040
	Trp	Thr	Ser	Asp	Arg	Pro	Leu	Gln	Val	Arg	Ile	Val	Val	Thr	Ala	Ala	1045	1050	1055	
35	Ala	Thr	Ala	Pro	Gly	Gly	Ala	Arg	Glu	Leu	Thr	Leu	His	Ser	Arg	Pro	1060	1065	1070	
	Glu	Pro	Val	Ala	Ala	Ser	Ser	Ser	Ser	Pro	Ser	Pro	Ala	Ser	Pro	Arg	1075	1080	1085	
40	His	Leu	Thr	Ala	Gln	Glu	Ser	Asp	Asp	Asp	Trp	Thr	Arg	His	Ala	Ser	1090	1095	1100	
	Gly	Leu	Leu	Ala	Pro	Ala	Ala	Gly	Leu	Ala	Asp	Asp	Phe	Ala	Glu	Leu	1105	1110	1115	1120
45	Thr	Gly	Ala	Trp	Pro	Pro	Val	Gly	Ala	Glu	Pro	Leu	Asp	Leu	Ala	Gly	1125	1130	1135	
	Gln	Tyr	Pro	Leu	Phe	Ala	Ala	Ala	Gly	Val	Arg	Tyr	Glu	Gly	Ala	Phe	1140	1145	1150	
50	Arg	Gly	Leu	Arg	Ala	Ala	Trp	Arg	Arg	Gly	Asp	Glu	Val	Phe	Ala	Asp	1155	1160	1165	
	Val	Arg	Leu	Pro	Asp	Ala	His	Ala	Val	Asp	Ala	Asp	Arg	Tyr	Gly	Val	1170	1175	1180	
55	His	Pro	Ala	Leu	Leu	Asp	Ala	Val	Leu	His	Pro	Ile	Ala	Ser	Leu	Asp				

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	1185		1190		1195		1200
	Pro Leu Gly Asp	Gly Gly His Gly Leu Leu Pro Phe Ser Trp Thr Asp					
		1205			1210		1215
5	Val Gln Gly His	Gly Ala Gly Gly His Ala Leu Arg Val Arg Val Ala					
		1220			1225		1230
	Ala Val Asp Gly	Gly Ala Val Ser Val Thr Ala Ala Asp His Ala Gly					
10		1235			1240		1245
	Asn Pro Val Leu Ser Ala Arg Ser Leu Ala Leu Arg Arg Ile Thr Ala						
		1250			1255		1260
	Asp Arg Leu Pro Ala Ala Pro Val Ala Pro Leu Tyr Arg Val Asp Trp						
15		1265			1270		1275
	Leu Pro Phe Pro Gly Pro Val Pro Val Ser Ala Gly Gly Arg Trp Ala						
		1285			1290		1295
	Val Val Gly Pro Glu Ala Glu Ala Thr Ala Ala Gly Leu Arg Ala Val						
20		1300			1305		1310
	Gly Leu Asp Val Arg Thr His Ala Leu Pro Leu Gly Glu Pro Leu Pro						
		1315			1320		1325
	Pro Gln Ala Gly Thr Asp Ala Glu Val Ile Ile Leu Asp Leu Thr Thr						
25		1330			1335		1340
	Thr Ala Ala Gly Arg Thr Ala Ser Asp Gly Gly Arg Leu Ser Leu Leu						
		1345			1350		1355
30							
	Asp Glu Val Arg Ala Thr Val Arg Arg Thr Leu Glu Ala Val Gln Ala						
		1365			1370		1375
	Arg Leu Ala Asp Thr Glu Thr Ala Pro Asp Val Asp Val Arg Thr Ala						
35		1380			1385		1390
	Ala Arg Pro Arg Thr Ala Ala Arg Thr Ser Pro Arg Val Asp Thr Arg						
		1395			1400		1405
	Thr Gly Ala Arg Thr Ala Asp Gly Pro Arg Leu Val Val Leu Thr Arg						
40		1410			1415		1420
	Gly Ala Ala Gly Pro Glu Gly Gly Ala Ala Asp Pro Ala Gly Ala Ala						
		1425			1430		1435
							1440
	Val Trp Gly Leu Val Arg Val Ala Gln Ala Glu Gln Pro Gly Arg Phe						
45		1445			1450		1455
	Thr Leu Val Asp Val Asp Gly Thr Gln Ala Ser Leu Arg Ala Leu Pro						
		1460			1465		1470
	Gly Leu Leu Ala Thr Asp Ala Gly Gln Ser Ala Val Arg Asp Gly Arg						
50		1475			1480		1485
	Val Thr Val Pro Arg Leu Val Pro Val Ala Asp Pro Val Pro His Gly						
		1490			1495		1500
	Gly Gly Thr Ala Ala Asp Gly Thr Gly Ala Gly Glu Pro Ser Ala Thr						
55		1505			1510		1515
							1520

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	Leu Asp Pro Glu Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Ala Leu	1525	1530	1535
5	Ala Ala Glu Thr Ala Arg His Leu Val Asp Arg His Lys Val Arg His	1540	1545	1550
	Leu Leu Leu Val Gly Arg Arg Gly Pro Asp Ala Pro Gly Val Asp Arg	1555	1560	1565
10	Leu Val Ala Glu Leu Thr Glu Ser Gly Ala Glu Val Ala Val Arg Ala	1570	1575	1580
	Cys Asp Val Thr Asp Arg Asp Ala Leu Arg Arg Leu Leu Asp Ala Leu	1585	1590	1595
15	Pro Asp Glu His Pro Leu Thr Cys Val Val His Thr Ala Gly Val Leu	1605	1610	1615
	Asp Asp Gly Val Leu Ser Ala Gln Thr Ala Glu Arg Ile Asp Thr Val	1620	1625	1630
20	Leu Arg Pro Lys Ala Asp Ala Ala Val His Leu Asp Glu Leu Thr Arg	1635	1640	1645
	Glu Ile Gly Arg Val Pro Leu Val Leu Tyr Ser Ser Val Ser Ala Thr	1650	1655	1660
25	Leu Gly Ser Ala Gly Gln Ala Gly Tyr Ala Ala Ala Asn Ala Phe Met	1665	1670	1675
	Asp Ala Leu Ala Ala Arg Arg Cys Ala Ala Gly His Pro Ala Leu Ser	1685	1690	1695
30	Leu Gly Trp Gly Trp Trp Ser Gly Val Gly Leu Ala Thr Gly Leu Asp	1700	1705	1710
35	Gly Ala Asp Ala Ala Arg Val Arg Arg Ser Gly Leu Ala Pro Leu Asp	1715	1720	1725
	Ala Gly Ala Ala Leu Asp Leu Leu Asp Arg Ala Leu Thr Arg Pro Glu	1730	1735	1740
40	Pro Ala Leu Leu Pro Val Arg Leu Asp Leu Arg Ala Ala Ala Gly Ala	1745	1750	1755
	Thr Ala Leu Pro Glu Val Leu Arg Asp Leu Ala Gly Val Pro Ala Asp	1765	1770	1775
45	Ala Arg Ser Thr Pro Gly Ala Ala Ala Gly Thr Gly Asp Glu Asp Gly	1780	1785	1790
	Ala Val Arg Pro Ala Pro Ala Pro Ala Asp Ala Ala Gly Thr Leu Ala	1795	1800	1805
50	Ala Arg Leu Ala Gly Arg Ser Ala Pro Glu Arg Thr Ala Leu Leu Leu	1810	1815	1820
55	Asp Leu Val Arg Thr Glu Val Ala Ala Val Leu Gly His Gly Asp Pro	1825	1830	1835
				1840

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Ala Ala Ile Gly Ala Ala Arg Thr Phe Lys Asp Ala Gly Phe Asp Ser
1845 1850 1855

5 Leu Thr Ala Val Asp Leu Arg Asn Arg Leu Asn Thr Arg Thr Gly Leu
1860 1865 1870

Arg Leu Pro Ala Thr Leu Val Phe Asp His Pro Thr Pro Leu Ala Leu
1875 1880 1885

10 Ala Glu Leu Leu Leu Asp Gly Leu Glu Ala Ala Gly Pro Ala Glu Pro
1890 1895 1900

Ala Ala Glu Val Pro Asp Glu Ala Ala Gly Ala Glu Thr Leu Ser Gly
1905 1910 1915 1920

15 Val Ile Asp Arg Leu Glu Arg Ser Leu Ala Ala Thr Asp Asp Gly Asp
1925 1930 1935

Ala Arg Val Arg Ala Ala Arg Arg Leu Arg Gly Leu Leu Asp Ala Leu
1940 1945 1950

20 Pro Ala Gly Pro Gly Ala Ala Ser Gly Pro Asp Ala Gly Glu His Ala
1955 1960 1965

Pro Gly Arg Gly Asp Val Val Ile Asp Arg Leu Arg Ser Ala Ser Asp
1970 1975 1980

25 Asp Asp Leu Phe Asp Leu Leu Asp Ser Asp Phe Gln
1985 1990 1995

30 (2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3724 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: unknown

35 (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

40 Met Ser Ala Thr Asn Glu Glu Lys Leu Arg Glu Tyr Leu Arg Arg Ala
1 5 10 15

Met Ala Asp Leu His Ser Ala Arg Glu Arg Leu Arg Glu Val Glu Ser
45 20 25 30

Ala Ser Arg Glu Pro Ile Ala Ile Val Gly Met Ala Cys Arg Tyr Pro
35 40 45

50 Gly Gly Val Ala Ser Pro Glu Glu Leu Trp Asp Leu Val Ala Ala Gly
50 55 60

Thr Asp Ala Ile Ser Pro Phe Pro Val Asp Arg Gly Trp Asp Ala Glu
65 70 75 80

55 Gly Leu Tyr Asp Pro Glu Pro Gly Val Pro Gly Lys Ser Tyr Val Arg
85 90 95

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Glu Gly Gly Phe Leu His Ser Ala Ala Glu Phe Asp Ala Glu Phe Phe
 100 105 110
 Gly Ile Ser Pro Arg Glu Ala Ala Ala Met Asp Pro Gln Gln Arg Leu
 115 120 125
 5 Leu Leu Glu Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Ile Val Pro
 130 135 140
 10 Ala Ser Leu Arg Gly Thr Arg Thr Gly Val Phe Thr Gly Val Met Tyr
 145 150 155 160
 His Asp Tyr Gly Ser His Gln Val Gly Thr Ala Ala Asp Pro Ser Gly
 165 170 175
 15 Gln Leu Gly Leu Gly Thr Ala Gly Ser Val Ala Ser Gly Arg Val Ala
 180 185 190
 Tyr Thr Leu Gly Leu Gln Gly Pro Ala Val Thr Met Asp Thr Ala Cys
 195 200 205
 20 Ser Ser Ser Leu Val Ala Leu His Leu Ala Val Gln Ser Leu Arg Arg
 210 215 220
 Gly Glu Cys Asp Leu Ala Leu Ala Gly Gly Ala Thr Val Leu Ala Thr
 225 230 235 240
 25 Pro Thr Val Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Ala Asp
 245 250 255
 Gly Arg Cys Lys Ala Phe Ala Glu Gly Ala Asp Gly Thr Ala Trp Ala
 260 265 270
 30 Glu Gly Ala Gly Val Leu Leu Val Glu Arg Leu Ser Asp Ala Arg Arg
 275 280 285
 Asn Gly His Arg Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln
 290 295 300
 35 Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Ser Gly Pro Ala Gln Gln
 305 310 315 320
 Arg Val Ile Arg Asp Ala Leu Ala Asp Ala Gly Leu Thr Pro Ala Asp
 325 330 335
 Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Pro Leu Gly Asp Pro
 340 345 350
 45 Ile Glu Ala Gly Ala Leu Met Ala Thr Tyr Gly Ser Glu Arg Val Gly
 355 360 365
 Asp Pro Leu Trp Leu Gly Ser Leu Lys Ser Asn Ile Gly His Thr Gln
 370 375 380
 50 Ala Ala Ala Gly Ala Ala Gly Val Ile Lys Met Val Gln Ala Leu Arg
 385 390 395 400
 Gln Ser Glu Leu Pro Arg Thr Leu His Val Asp Ala Pro Ser Ala Lys
 405 410 415
 55

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	Val	Glu	Trp	Asp	Ala	Gly	Ala	Val	Gln	Leu	Leu	Thr	Gly	Val	Arg	Pro	
				420					425					430			
5	Trp	Pro	Arg	Arg	Glu	His	Arg	Pro	Arg	Arg	Ala	Ala	Val	Ser	Ala	Phe	
			435					440					445				
	Gly	Val	Ser	Gly	Thr	Asn	Ala	His	Val	Ile	Ile	Glu	Glu	Pro	Pro	Ala	
	450					455						460					
10	Ala	Gly	Asp	Thr	Ser	Pro	Ala	Gly	Asp	Thr	Pro	Glu	Pro	Gly	Glu	Ala	
	465					470					475					480	
	Thr	Ala	Ser	Pro	Ser	Thr	Ala	Ala	Gly	Pro	Ser	Ser	Pro	Ser	Ala	Val	
					485					490					495		
15	Ala	Gly	Pro	Leu	Ser	Pro	Ser	Ser	Pro	Ala	Val	Val	Trp	Pro	Leu	Ser	
				500					505					510			
	Ala	Glu	Thr	Ala	Pro	Ala	Leu	Arg	Ala	Gln	Ala	Ala	Arg	Leu	Arg	Ala	
			515					520					525				
20	His	Leu	Glu	Arg	Leu	Pro	Gly	Thr	Ser	Pro	Thr	Asp	Ile	Gly	His	Ala	
	530						535					540					
	Leu	Ala	Ala	Glu	Arg	Ala	Ala	Leu	Thr	Arg	Arg	Val	Val	Leu	Leu	Gly	
	545					550				555						560	
25	Asp	Asp	Gly	Ala	Pro	Val	Asp	Ala	Leu	Ala	Ala	Leu	Ala	Ala	Gly	Glu	
					565					570					575		
	Thr	Thr	Pro	Asp	Ala	Val	His	Gly	Thr	Ala	Ala	Asp	Ile	Arg	Arg	Val	
				580					585					590			
30	Ala	Phe	Val	Phe	Pro	Gly	Gln	Gly	Ser	Gln	Trp	Ala	Gly	Met	Gly	Ala	
		595					600						605				
	Glu	Leu	Leu	Asp	Thr	Ala	Pro	Ala	Phe	Ala	Ala	Glu	Leu	Asp	Arg	Cys	
35		610					615					620					
	Gln	Gly	Ala	Leu	Ser	Pro	Tyr	Val	Asp	Trp	Asn	Leu	Ala	Asp	Val	Leu	
	625					630					635					640	
40	Arg	Gly	Ala	Pro	Ala	Ala	Pro	Gly	Leu	Asp	Arg	Val	Asp	Val	Val	Gln	
				645						650					655		
	Pro	Ala	Thr	Phe	Ala	Val	Met	Val	Gly	Leu	Ala	Ala	Leu	Trp	Arg	Ser	
				660					665					670			
45	Leu	Gly	Val	Glu	Pro	Ala	Ala	Val	Ile	Gly	His	Ser	Gln	Gly	Glu	Ile	
		675						680					685				
	Ala	Ala	Ala	Cys	Val	Ala	Gly	Ala	Leu	Ser	Leu	Glu	Asp	Ala	Ala	Arg	
		690					695					700					
50	Ile	Val	Ala	Leu	Arg	Ser	Gln	Val	Ile	Ala	Arg	Glu	Leu	Ala	Gly	Arg	
	705					710					715					720	
	Gly	Gly	Met	Ala	Ser	Val	Ala	Leu	Pro	Ala	Ala	Glu	Val	Glu	Ala	Arg	
					725					730				735			
55	Leu	Ala	Gly	Gly	Val	Glu	Ile	Ala	Ala	Val	Asn	Gly	Pro	Gly	Ser	Thr	

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	740	745	750
5	Val Val Cys Gly Glu Pro Gly Ala Leu Glu Ala Leu Leu Val Thr Leu 755 760 765		
	Glu Ser Glu Gly Thr Arg Val Arg Arg Ile Asp Val Asp Tyr Ala Ser 770 775 780		
10	His Ser His Tyr Val Glu Ser Ile Arg Ala Glu Leu Ala Thr Val Leu 785 790 795 800		
	Gly Pro Val Arg Pro Arg Arg Gly Asp Val Pro Phe Tyr Ser Thr Val 805 810 815		
15	Glu Ala Ala Leu Leu Asp Thr Ala Thr Leu Asp Ala Asp Tyr Trp Tyr 820 825 830		
	Arg Asn Leu Arg Leu Pro Val Arg Phe Glu Pro Thr Val Arg Ala Met 835 840 845		
20	Leu Asp Asp Gly Val Asp Ala Phe Val Glu Cys Ser Ala His Pro Val 850 855 860		
	Leu Thr Val Gly Val Arg Gln Thr Val Glu Ser Ala Gly Gly Ala Val 865 870 875 880		
25	Pro Ala Leu Ala Ser Leu Arg Arg Asp Glu Gly Gly Leu Arg Arg Phe 885 890 895		
	Leu Thr Ser Ala Ala Glu Ala Gln Val Val Gly Val Pro Val Asp Trp 900 905 910		
30	Ala Thr Leu Arg Pro Gly Ala Gly Arg Val Asp Leu Pro Thr Tyr Ala 915 920 925		
	Phe Gln Arg Glu Arg His Trp Val Gly Pro Ala Arg Pro Asp Ser Ala 930 935 940		
35	Ala Thr Ala Ala Thr Thr Gly Asp Asp Ala Pro Glu Pro Gly Asp Arg 945 950 955 960		
	Leu Gly Tyr His Val Ala Trp Lys Gly Leu Arg Ser Thr Thr Gly Gly 965 970 975		
40	Trp Arg Pro Gly Leu Arg Leu Leu Ile Val Pro Thr Gly Asp Gln Tyr 980 985 990		
	Thr Ala Leu Ala Asp Thr Leu Glu Gln Ala Val Ala Ser Phe Gly Gly 995 1000 1005		
45	Thr Val Arg Arg Val Ala Phe Asp Pro Ala Arg Thr Gly Arg Ala Glu 1010 1015 1020		
	Leu Phe Gly Leu Leu Glu Thr Glu Ile Asn Gly Asp Thr Ala Val Thr 1025 1030 1035 1040		
50	Gly Val Val Ser Leu Leu Gly Leu Cys Thr Asp Gly Arg Pro Asp His 1045 1050 1055		
55	Pro Ala Val Pro Val Ala Val Thr Ala Thr Leu Ala Leu Val Gln Ala 1060 1065 1070		

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Leu Ala Asp Leu Gly Ser Thr Ala Pro Leu Trp Thr Val Thr Cys Gly
 1075 1080 1085
 5 Ala Val Ala Thr Ala Pro Asp Glu Leu Pro Cys Thr Ala Gly Ala Gln
 1090 1095 1100
 Leu Trp Gly Leu Gly Arg Val Ala Ala Leu Glu Leu Pro Glu Val Trp
 1105 1110 1115 1120
 10 Gly Gly Leu Ile Asp Leu Pro Ala Arg Pro Asp Ala Arg Val Leu Asp
 1125 1130 1135
 Arg Leu Ala Gly Val Leu Ala Glu Pro Gly Gly Glu Asp Gln Ile Ala
 1140 1145 1150
 15 Val Arg Met Ala Gly Val Phe Gly Arg Arg Val Leu Arg Asn Pro Ala
 1155 1160 1165
 Asp Ser Arg Pro Pro Ala Trp Arg Ala Arg Gly Thr Val Leu Ile Ala
 1170 1175 1180
 20 Gly Asp Leu Thr Thr Val Pro Gly Arg Leu Val Arg Ser Leu Leu Glu
 1185 1190 1195 1200
 Asp Gly Ala Asp Arg Val Val Leu Ala Gly Pro Asp Ala Pro Ala Gln
 1205 1210 1215
 25 Ala Ala Ala Ala Gly Leu Thr Gly Val Ser Leu Val Pro Val Arg Cys
 1220 1225 1230
 Asp Val Thr Asp Arg Ala Ala Leu Ala Ala Leu Leu Asp Glu His Ala
 1235 1240 1245
 30 Pro Thr Val Ala Val His Ala Pro Pro Leu Val Pro Leu Ala Pro Leu
 1250 1255 1260
 Arg Glu Thr Ala Pro Gly Asp Ile Ala Ala Ala Leu Ala Ala Lys Thr
 1265 1270 1275 1280
 Thr Ala Ala Gly His Leu Val Asp Leu Ala Pro Ala Ala Gly Leu Asp
 1285 1290 1295
 40 Ala Leu Val Leu Phe Ser Ser Val Ser Gly Val Trp Gly Gly Ala Ala
 1300 1305 1310
 Gln Gly Gly Tyr Ala Ala Ala Ser Ala His Leu Asp Ala Leu Ala Glu
 1315 1320 1325
 45 Arg Ala Arg Ala Ala Gly Val Pro Ala Phe Ser Val Ala Trp Ser Pro
 1330 1335 1340
 Trp Ala Gly Gly Thr Pro Ala Asp Gly Ala Glu Ala Glu Phe Leu Ser
 1345 1350 1355 1360
 50 Arg Arg Gly Leu Ala Pro Leu Asp Pro Asp Gln Ala Val Arg Thr Leu
 1365 1370 1375
 Arg Arg Met Leu Glu Arg Gly Ser Ala Cys Gly Ala Val Ala Asp Val
 1380 1385 1390
 55

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	Glu Trp Ser Arg Phe Ala Ala Ser Tyr Thr Trp Val Arg Pro Ala Val	
	1395	1400 1405
5	Leu Phe Asp Asp Ile Pro Asp Val Gln Arg Leu Arg Ala Ala Glu Leu	
	1410	1415 1420
	Ala Pro Ser Thr Gly Asp Ser Thr Thr Ser Glu Leu Val Arg Glu Leu	
	1425	1430 1435 1440
10	Thr Ala Gln Ser Gly His Lys Arg His Ala Thr Leu Leu Arg Leu Val	
		1445 1450 1455
	Arg Ala His Ala Ala Ala Val Leu Gly Gln Ser Ser Gly Asp Ala Val	
		1460 1465 1470
15	Ser Ser Ala Arg Ala Phe Arg Asp Leu Gly Phe Asp Ser Leu Thr Ala	
		1475 1480 1485
	Leu Glu Leu Arg Asp Arg Leu Ser Thr Ser Thr Gly Leu Lys Leu Pro	
		1490 1495 1500
20	Thr Ser Leu Val Phe Asp His Ser Ser Pro Ala Ala Leu Ala Arg His	
		1505 1510 1515 1520
	Leu Gly Glu Glu Leu Leu Gly Arg Asn Asp Thr Ala Asp Arg Ala Gly	
		1525 1530 1535
25	Pro Asp Thr Pro Val Arg Thr Asp Glu Pro Ile Ala Ile Ile Gly Met	
		1540 1545 1550
	Ala Cys Arg Leu Pro Gly Gly Val Gln Ser Pro Glu Asp Leu Trp Asp	
		1555 1560 1565
30	Leu Leu Thr Gly Gly Thr Asp Ala Ile Thr Pro Phe Pro Thr Asn Arg	
		1570 1575 1580
	Gly Trp Asp Asn Glu Thr Leu Tyr Asp Pro Asp Pro Asp Ser Pro Gly	
		1585 1590 1595 1600
35	His His Thr Tyr Val Arg Glu Gly Gly Phe Leu His Asp Ala Ala Glu	
		1605 1610 1615
	Phe Asp Pro Gly Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met	
		1620 1625 1630
40	Asp Pro Gln Gln Arg Leu Ile Leu Glu Thr Ser Trp Glu Ser Phe Glu	
		1635 1640 1645
	Arg Ala Gly Ile Asp Pro Val Glu Leu Arg Gly Ser Arg Thr Gly Val	
		1650 1655 1660
45	Phe Val Gly Thr Asn Gly Gln His Tyr Val Pro Leu Leu Gln Asp Gly	
		1665 1670 1675 1680
50	Asp Glu Asn Phe Asp Gly Tyr Ile Ala Thr Gly Asn Ser Ala Ser Val	
		1685 1690 1695
	Met Ser Gly Arg Leu Ser Tyr Val Phe Gly Leu Glu Gly Pro Ala Val	
		1700 1705 1710
55	Thr Val Asp Thr Ala Cys Ser Ala Ser Leu Ala Ala Leu His Leu Ala	

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	1715	1720	1725
5	Val Gln Ser Leu Arg Arg Gly Glu Cys Asp Tyr Ala Leu Ala Gly Gly 1730	1735	1740
	Ala Thr Val Met Ser Thr Pro Glu Met Leu Val Glu Phe Ala Arg Gln 1745	1750	1755 1760
10	Arg Ala Val Ser Pro Asp Gly Arg Ser Lys Ala Phe Ala Glu Ala Ala 1765	1770	1775
	Asp Gly Val Gly Leu Ala Glu Gly Ala Gly Met Leu Leu Val Glu Arg 1780	1785	1790
15	Leu Ser Glu Ala Gln Lys Lys Gly His Pro Val Leu Ala Val Val Arg 1795	1800	1805
	Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro 1810	1815	1820
20	Ser Gly Pro Ala Gln Gln Arg Val Ile Arg Glu Ala Leu Ala Asp Ala 1825	1830	1835 1840
	Gly Leu Thr Pro Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly 1845	1850	1855
25	Thr Pro Leu Gly Asp Pro Ile Glu Ala Gly Ala Leu Leu Ala Thr Tyr 1860	1865	1870
	Gly Arg Asp Arg Arg Asp Gly Pro Leu Trp Leu Gly Ser Leu Lys Ser 1875	1880	1885
30	Asn Ile Gly His Thr Gln Ala Ala Ala Gly Val Ala Gly Val Ile Lys 1890	1895	1900
	Met Val Leu Ala Leu Arg His Gly Glu Leu Pro Arg Thr Leu His Ala 1905	1910	1915 1920
35	Ser Thr Ala Ser Ser Arg Ile Asp Trp Asp Ala Gly Ala Val Glu Leu 1925	1930	1935
	Leu Asp Glu Ala Arg Pro Trp Leu Gln Arg Ala Glu Gly Pro Arg Arg 1940	1945	1950
40	Ala Gly Ile Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu Val 1955	1960	1965
	Ile Glu Glu Pro Pro Glu Pro Thr Ala Pro Glu Leu Leu Ala Pro Glu 1970	1975	1980
45	Pro Ala Ala Asp Gly Asp Val Trp Ser Glu Glu Trp Trp His Glu Val 1985	1990	1995 2000
50	Thr Val Pro Leu Met Met Ser Ala His Asn Glu Ala Ala Leu Arg Asp 2005	2010	2015
	Gln Ala Arg Arg Leu Arg Ala Asp Leu Leu Ala His Pro Glu Leu His 2020	2025	2030
55	Pro Ala Asp Val Gly Tyr Thr Leu Ile Thr Thr Arg Thr Arg Phe Glu 2035	2040	2045

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	Gln Arg Ala Ala Val Val Gly Glu Asn Phe Thr Glu Leu Ile Ala Ala	
	2050	2055 2060
5	Leu Asp Asp Leu Val Glu Gly Arg Pro His Pro Leu Val Leu Arg Gly	
	2065	2070 2075 2080
	Thr Ala Gly Thr Ser Asp Gln Val Val Phe Val Phe Pro Gly Gln Gly	
		2085 2090 2095
10	Ser Gln Trp Pro Glu Met Ala Asp Gly Leu Leu Ala Arg Ser Ser Gly	
		2100 2105 2110
	Ser Gly Ser Phe Leu Glu Thr Ala Arg Ala Cys Asp Leu Ala Leu Arg	
		2115 2120 2125
15	Pro His Leu Gly Trp Ser Val Leu Asp Val Leu Arg Arg Glu Pro Gly	
		2130 2135 2140
	Ala Pro Ser Leu Asp Arg Val Asp Val Val Gln Pro Val Leu Phe Thr	
20		2145 2150 2155 2160
	Met Met Val Ser Leu Ala Glu Thr Trp Arg Ser Leu Gly Val Glu Pro	
		2165 2170 2175
	Ala Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Tyr Val	
25		2180 2185 2190
	Ala Gly Ala Leu Thr Leu Asp Asp Ala Ala Arg Ile Val Ala Leu Arg	
		2195 2200 2205
30	Ser Gln Ala Trp Leu Arg Leu Ala Gly Lys Gly Gly Met Val Ala Val	
		2210 2215 2220
	Thr Leu Ser Glu Arg Asp Leu Arg Pro Arg Leu Glu Pro Trp Ser Asp	
		2225 2230 2235 2240
	Arg Leu Ala Val Ala Ala Val Asn Gly Pro Glu Thr Cys Ala Val Ser	
35		2245 2250 2255
	Gly Asp Pro Asp Ala Leu Ala Glu Leu Val Ala Glu Leu Gly Ala Glu	
		2260 2265 2270
40	Gly Val His Ala Arg Pro Ile Pro Gly Val Asp Thr Ala Gly His Ser	
		2275 2280 2285
	Pro Gln Val Asp Thr Leu Glu Ala His Leu Arg Lys Val Leu Ala Pro	
		2290 2295 2300
45	Val Ala Pro Arg Thr Ser Asp Ile Pro Phe Tyr Ser Thr Val Thr Gly	
		2305 2310 2315 2320
	Gly Leu Ile Asp Thr Ala Glu Leu Asp Ala Asp Tyr Trp Tyr Arg Asn	
		2325 2330 2335
50	Met Arg Glu Pro Val Glu Phe Glu Gln Ala Thr Arg Ala Leu Ile Ala	
		2340 2345 2350
	Asp Gly His Asp Val Phe Leu Glu Ser Ser Pro His Pro Met Leu Ala	
55		2355 2360 2365

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	Val Ser Leu Gln Glu Thr Ile Ser Asp Ala Gly Ser Pro Ala Ala Val	
	2370	2375 2380
5	Leu Gly Thr Leu Arg Arg Gly Gln Gly Gly Pro Arg Trp Leu Gly Val	
	2385	2390 2395 2400
	Ala Leu Cys Arg Ala Tyr Thr His Gly Leu Glu Ile Asp Ala Glu Ala	
		2405 2410 2415
10	Ile Phe Gly Pro Asp Ser Arg Gln Val Glu Leu Pro Thr Tyr Pro Phe	
		2420 2425 2430
	Gln Arg Glu Arg Tyr Trp Tyr Ser Pro Gly His Arg Gly Asp Asp Pro	
		2435 2440 2445
15	Ala Ser Leu Gly Leu Asp Ala Val Asp His Pro Leu Leu Gly Ser Gly	
		2450 2455 2460
	Val Glu Leu Pro Glu Ser Gly Asp Arg Met Tyr Thr Ala Arg Leu Gly	
		2465 2470 2475 2480
20	Ala Asp Thr Thr Pro Trp Leu Ala Asp His Ala Leu Leu Gly Ser Pro	
		2485 2490 2495
	Leu Leu Pro Gly Ala Ala Phe Ala Asp Leu Ala Leu Trp Ala Gly Arg	
		2500 2505 2510
25	Gln Ala Gly Thr Gly Arg Val Glu Glu Leu Thr Leu Ala Ala Pro Leu	
		2515 2520 2525
	Val Leu Pro Gly Ser Gly Gly Val Arg Leu Arg Leu Asn Val Gly Ala	
30		2530 2535 2540
	Pro Gly Thr Asp Asp Ala Arg Arg Phe Ala Val His Ala Arg Ala Glu	
		2545 2550 2555 2560
	Gly Ala Thr Asp Trp Thr Leu His Ala Glu Gly Leu Leu Thr Ala Gln	
35		2565 2570 2575
	Asp Thr Ala Asp Ala Pro Asp Ala Ser Ala Ala Thr Pro Pro Pro Gly	
		2580 2585 2590
	Ala Glu Gln Leu Asp Ile Gly Asp Phe Tyr Gln Arg Phe Ser Glu Leu	
40		2595 2600 2605
	Gly Tyr Gly Tyr Gly Pro Phe Phe Arg Gly Leu Val Ser Ala His Arg	
		2610 2615 2620
	Cys Gly Pro Asp Ile His Ala Glu Val Ala Leu Pro Val Gln Ala Gln	
45		2625 2630 2635 2640
	Gly Asp Ala Ala Arg Phe Gly Ile His Pro Ala Leu Leu Asp Ala Ala	
		2645 2650 2655
50	Leu Gln Thr Met Ser Leu Gly Gly Phe Phe Pro Glu Asp Gly Arg Val	
		2660 2665 2670
	Arg Met Pro Phe Ala Leu Arg Gly Val Arg Leu Tyr Arg Ala Gly Ala	
		2675 2680 2685
55	Asp Arg Leu His Val Arg Val Ser Pro Val Ser Glu Asp Ala Val Arg	

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	2690	2695	2700
5	Ile Arg Cys Ala Asp Gly Glu Gly Arg Pro Val Ala Glu Ile Glu Ser 2705 2710 2715 2720		
	Phe Ile Met Arg Pro Val Asp Pro Gly Gln Leu Leu Gly Gly Arg Pro 2725 2730 2735		
10	Val Gly Ala Asp Ala Leu Phe Arg Ile Ala Trp Arg Glu Leu Ala Ala 2740 2745 2750		
	Gly Pro Gly Thr Arg Thr Gly Asp Gly Thr Pro Pro Pro Val Arg Trp 2755 2760 2765		
15	Val Leu Ala Gly Pro Asp Ala Leu Gly Leu Ala Glu Ala Ala Asp Ala 2770 2775 2780		
	His Leu Pro Ala Val Pro Gly Pro Asp Gly Ala Leu Pro Ser Pro Thr 2785 2790 2795 2800		
20	Gly Arg Pro Ala Pro Asp Ala Val Val Phe Ala Val Arg Ala Gly Thr 2805 2810 2815		
	Gly Asp Val Ala Ala Asp Ala His Thr Val Ala Cys Arg Val Leu Asp 2820 2825 2830		
25	Leu Val Gln Arg Arg Leu Ala Ala Pro Glu Gly Pro Asp Gly Ala Arg 2835 2840 2845		
	Leu Val Val Ala Thr Arg Gly Ala Val Ala Val Arg Asp Asp Ala Glu 2850 2855 2860		
30	Val Asp Asp Pro Ala Ala Ala Ala Ala Trp Gly Leu Leu Arg Ser Ala 2865 2870 2875 2880		
	Gln Ala Glu Glu Pro Gly Arg Phe Leu Leu Val Asp Leu Asp Asp Asp 2885 2890 2895		
35	Pro Ala Ser Ala Arg Ala Leu Thr Asp Ala Leu Ala Ser Gly Glu Pro 2900 2905 2910		
	Gln Thr Ala Val Arg Ala Gly Thr Val Tyr Val Pro Arg Leu Glu Arg 2915 2920 2925		
40	Ala Ala Asp Arg Thr Asp Gly Pro Leu Thr Pro Pro Asp Asp Gly Ala 2930 2935 2940		
	Trp Arg Leu Gly Arg Gly Thr Asp Leu Thr Leu Asp Gly Leu Ala Leu 2945 2950 2955 2960		
45	Val Pro Ala Pro Asp Ala Glu Ala Pro Leu Glu Pro Gly Gln Val Arg 2965 2970 2975		
	Val Ala Val Arg Ala Ala Gly Val Asn Phe Arg Asp Ala Leu Ile Ala 2980 2985 2990		
50	Leu Gly Met Tyr Pro Gly Glu Ala Glu Met Gly Thr Glu Gly Ala Gly 2995 3000 3005		
	Thr Val Val Glu Val Gly Pro Gly Val Thr Gly Val Ala Val Gly Asp 3010 3015 3020		
55			

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Arg Val Leu Gly Leu Trp Asp Gly Gly Leu Gly Pro Leu Cys Val Ala
 3025 3030 3035 3040
 5 Asp His Arg Leu Leu Ala Pro Val Pro Asp Gly Trp Ser Tyr Ala Gln
 3045 3050 3055
 Ala Ala Ser Val Pro Ala Val Phe Leu Ser Ala Tyr Tyr Gly Leu Val
 3060 3065 3070
 10 Thr Leu Ala Gly Leu Arg Pro Gly Glu Arg Val Leu Val His Ala Ala
 3075 3080 3085
 Ala Gly Gly Val Gly Met Ala Ala Val Gln Ile Ala Arg His Leu Gly
 3090 3095 3100
 15 Ala Glu Val Leu Ala Thr Ala Ser Pro Gly Lys Trp Asp Ala Leu Arg
 3105 3110 3115 3120
 Ala Met Gly Ile Thr Asp Asp His Leu Ala Ser Ser Arg Thr Leu Asp
 3125 3130 3135
 20 Phe Ala Thr Ala Phe Thr Gly Ala Asp Gly Thr Ser Arg Ala Asp Val
 3140 3145 3150
 Val Leu Asn Ser Leu Thr Lys Glu Phe Val Asp Ala Ser Leu Gly Leu
 3155 3160 3165
 25 Leu Arg Pro Gly Gly Arg Phe Leu Glu Leu Gly Lys Thr Asp Val Arg
 3170 3175 3180
 30 Asp Pro Glu Arg Ile Ala Ala Glu His Pro Gly Val Arg Tyr Arg Ala
 3185 3190 3195 3200
 Phe Asp Leu Asn Glu Ala Gly Pro Asp Ala Leu Gly Arg Leu Leu Arg
 3205 3210 3215
 35 Glu Leu Met Asp Leu Phe Ala Ala Gly Val Leu His Pro Leu Pro Val
 3220 3225 3230
 Val Thr His Asp Val Arg Arg Ala Ala Asp Ala Leu Arg Thr Ile Ser
 3235 3240 3245
 40 Gln Ala Arg His Thr Gly Lys Leu Val Leu Thr Met Pro Pro Ala Trp
 3250 3255 3260
 His Pro Tyr Gly Thr Val Leu Val Thr Gly Gly Thr Gly Ala Leu Gly
 3265 3270 3275 3280
 45 Ser Arg Ile Ala Arg His Leu Ala Ser Arg His Gly Val Arg Arg Leu
 3285 3290 3295
 Leu Ile Ala Ala Arg Arg Gly Pro Asp Gly Glu Gly Ala Ala Glu Leu
 3300 3305 3310
 50 Val Ala Asp Leu Ala Ala Leu Gly Ala Ser Ala Thr Val Val Ala Cys
 3315 3320 3325
 Asp Val Ser Asp Ala Asp Ala Val Arg Gly Leu Leu Ala Gly Ile Pro
 3330 3335 3340
 55

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	Ala Asp His Pro Leu Thr Ala Val Val His Ser Thr Gly Val Leu Asp	
	3345	3350 3355 3360
5	Asp Gly Val Leu Pro Gly Leu Thr Pro Glu Arg Met Arg Arg Val Leu	
	3365	3370 3375
	Arg Pro Lys Val Glu Ala Ala Val His Leu Asp Glu Leu Thr Arg Asp	
	3380	3385 3390
10	Leu Asp Leu Ser Ala Phe Val Leu Phe Ser Ser Ser Ala Gly Leu Leu	
	3395	3400 3405
	Gly Ser Pro Ala Gln Gly Asn Tyr Ala Ala Ala Asn Ala Thr Leu Asp	
	3410	3415 3420
15	Ala Leu Ala Ala Arg Arg Arg Ser Leu Gly Leu Pro Ser Val Ser Leu	
	3425	3430 3435 3440
	Ala Trp Gly Leu Trp Ser Asp Thr Ser Arg Met Ala His Ala Leu Asp	
	3445	3450 3455
20	Gln Glu Ser Leu Gln Arg Arg Phe Ala Arg Ser Gly Phe Pro Pro Leu	
	3460	3465 3470
	Ser Ala Thr Leu Gly Ala Ala Leu Phe Asp Ala Ala Leu Arg Val Asp	
	3475	3480 3485
25	Glu Ala Val Gln Val Pro Met Arg Phe Asp Pro Ala Ala Leu Arg Ala	
	3490	3495 3500
	Thr Gly Ser Val Pro Ala Leu Leu Ser Asp Leu Val Gly Ser Ala Pro	
	3505	3510 3515 3520
30	Ala Thr Gly Ser Ala Ala Pro Ala Ser Gly Pro Leu Pro Ala Pro Asp	
	3525	3530 3535
	Ala Gly Thr Val Gly Glu Pro Leu Ala Glu Arg Leu Ala Gly Leu Ser	
	3540	3545 3550
35	Ala Glu Glu Arg His Asp Arg Leu Leu Gly Leu Val Gly Glu His Val	
	3555	3560 3565
	Ala Ala Val Leu Gly His Gly Ser Ala Ala Glu Val Arg Pro Asp Arg	
	3570	3575 3580
	Pro Phe Arg Glu Val Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg	
	3585	3590 3595 3600
45	Asn Arg Met Ala Ala Val Thr Gly Val Arg Leu Pro Ala Thr Leu Val	
	3605	3610 3615
	Phe Asp His Pro Thr Pro Ala Ala Leu Ser Ser His Leu Asp Gly Leu	
	3620	3625 3630
50	Leu Ala Pro Ala Gln Pro Val Thr Thr Thr Pro Leu Leu Ser Glu Leu	
	3635	3640 3645
	Asp Arg Ile Glu Glu Ala Leu Ala Ala Leu Thr Pro Glu His Leu Ala	
	3650	3655 3660
55	Glu Leu Ala Pro Ala Pro Asp Asp Arg Ala Glu Val Ala Leu Arg Leu	

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3665 3670 3675 3680

Asp Ala Leu Ala Asp Arg Trp Arg Ala Leu His Asp Gly Ala Pro Gly
 3685 3690 3695

5 Ala Asp Asp Asp Ile Thr Asp Val Leu Ser Ser Ala Asp Asp Asp Glu
 3700 3705 3710

10 Ile Phe Ala Phe Ile Asp Glu Arg Tyr Gly Thr Ser
 3715 3720

(2) INFORMATION FOR SEQ ID NO:11:

15 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1580 amino acids
 (B) TYPE: amino acid
 (D) TOPOLOGY: unknown

20 (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

25 Met Ala Asn Glu Glu Lys Leu Arg Ala Tyr Leu Lys Arg Val Thr Gly
 1 5 10 15

30 Glu Leu His Arg Ala Thr Glu Gln Leu Arg Ala Leu Asp Arg Arg Ala
 20 25 30

35 His Glu Pro Ile Ala Ile Val Gly Ala Ala Cys Arg Leu Pro Gly Gly
 35 40 45

40 Val Glu Ser Pro Asp Asp Leu Trp Glu Leu Leu His Ala Gly Ala Asp
 50 55 60

45 Ala Val Gly Pro Ala Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Arg
 65 70 75 80

50 Tyr Ser Pro Asp Pro Asp Thr Pro Gly Thr Ser Tyr Cys Arg Glu Gly
 85 90 95

55 Gly Phe Val Gln Gly Ala Asp Arg Phe Asp Pro Ala Leu Phe Gly Ile
 100 105 110

60 Ser Pro Asn Glu Ala Leu Thr Met Asp Pro Gln Gln Arg Leu Leu Leu
 115 120 125

65 Glu Thr Ser Trp Glu Ala Leu Glu Arg Ala Gly Leu Asp Pro Gln Ser
 130 135 140

70 Leu Ala Gly Ser Arg Thr Gly Val Phe Ala Gly Ala Trp Glu Ser Gly
 145 150 155 160

75 Tyr Gln Lys Gly Val Glu Gly Leu Glu Ala Asp Leu Glu Ala Gln Leu
 165 170 175

80 Leu Ala Gly Ile Val Ser Phe Thr Ala Gly Arg Val Ala Tyr Ala Leu
 180 185 190

85 Gly Leu Glu Gly Pro Ala Leu Thr Ile Asp Thr Ala Cys Ser Ser Ser

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	195	200	205
	Leu Val Ala Leu His Leu	Ala Val Gln Ser	Leu Arg Arg Gly Glu Cys
	210	215	220
5	Asp Leu Ala Leu Ala Gly	Gly Ala Thr Val	Ile Ala Asp Phe Ala Leu
	225	230	235 240
	Phe Thr Gln Phe Ser Arg	Gln Arg Gly Leu	Ala Pro Asp Gly Arg Cys
10		245	250 255
	Lys Ala Phe Gly Glu Thr	Ala Asp Gly Phe Gly	Pro Ala Glu Gly Ala
		260	265 270
	Gly Met Leu Leu Val Glu	Arg Leu Ser Asp Ala	Arg Arg Asn Gly His
15		275	280 285
	Pro Val Leu Ala Val Val	Arg Gly Ser Ala Val	Asn Gln Asp Gly Ala
		290	295 300
	Ser Asn Gly Leu Thr Ala	Pro Ser Gly Pro Ala	Gln Gln Arg Val Ile
20		305	310 315 320
	Arg Glu Ala Leu Ala Asp	Ala Gly Leu Thr Pro	Ala Asp Val Asp Ala
		325	330 335
	Val Glu Ala His Gly Thr	Gly Thr Pro Leu Gly	Asp Pro Ile Glu Ala
25		340	345 350
	Gly Ala Leu Met Ala Thr	Tyr Gly His Glu Arg	Thr Gly Asp Pro Leu
		355	360 365
	Trp Leu Gly Ser Leu Lys	Ser Asn Ile Gly His	Thr Gln Ala Ala Ala
30		370	375 380
	Gly Val Ala Gly Val Ile	Lys Met Val Leu Ala	Leu Arg His Gly Glu
35		385	390 395 400
	Leu Pro Arg Thr Leu His	Ala Ser Thr Ala Ser	Ser Arg Ile Glu Trp
		405	410 415
	Asp Ala Gly Ala Val Glu	Leu Leu Asp Glu Ala	Arg Pro Trp Pro Arg
40		420	425 430
	Arg Ala Glu Gly Pro Arg	Arg Ala Gly Ile Ser	Ser Phe Gly Ile Ser
		435	440 445
	Gly Thr Asn Ala His Leu	Val Ile Glu Glu Glu	Pro Pro Ala Arg Pro
45		450	455 460
	Glu Pro Glu Glu Ala Ala	Gln Pro Pro Ala Pro	Ala Thr Thr Val Leu
		465	470 475 480
	Pro Leu Ser Ala Ala Gly	Ala Arg Ser Leu Arg	Glu Gln Ala Arg Arg
50		485	490 495
	Leu Ala Ala His Leu Ala	Gly His Glu Glu Ile	Thr Ala Ala Asp Ala
		500	505 510
55	Ala Arg Ser Ala Ala Thr	Thr Arg Ala Ala Leu	Ser His Arg Ala Ser

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		515				520				525							
	Val	Leu	Ala	Asp	Asp	Arg	Arg	Ala	Leu	Ile	Asp	Arg	Leu	Thr	Ala	Leu	
		530					535					540					
5		Ala	Glu	Asp	Arg	Lys	Asp	Pro	Gly	Val	Thr	Val	Gly	Glu	Ala	Gly	Ser
		545					550					555					560
	Gly	Arg	Pro	Pro	Val	Phe	Val	Phe	Pro	Gly	Gln	Gly	Ser	Gln	Trp	Thr	
					565					570					575		
10	Gly	Met	Gly	Ala	Glu	Leu	Leu	Asp	Arg	Ala	Pro	Val	Phe	Arg	Ala	Lys	
				580					585					590			
	Ala	Glu	Glu	Cys	Ala	Arg	Ala	Leu	Ala	Ala	His	Leu	Asp	Trp	Ser	Val	
			595					600					605				
15	Leu	Asp	Val	Leu	Arg	Asp	Ala	Pro	Gly	Ala	Pro	Pro	Ile	Asp	Arg	Ala	
		610					615					620					
	Asp	Val	Val	Gln	Pro	Thr	Leu	Phe	Thr	Met	Met	Val	Ser	Leu	Ala	Ala	
20		625				630					635						640
	Leu	Trp	Glu	Ser	His	Gly	Val	Arg	Pro	Ala	Ala	Val	Val	Gly	His	Ser	
					645					650					655		
	Gln	Gly	Glu	Ile	Ala	Ala	Ala	His	Ala	Ala	Gly	Ala	Leu	Ser	Leu	Asp	
25				660					665					670			
	Asp	Ala	Ala	Arg	Val	Ile	Ala	Glu	Arg	Ser	Arg	Leu	Trp	Lys	Arg	Leu	
			675					680					685				
30	Ala	Gly	Asn	Gly	Gly	Met	Leu	Ser	Val	Met	Ala	Pro	Ala	Asp	Arg	Val	
		690					695					700					
	Arg	Glu	Leu	Met	Glu	Pro	Trp	Ala	Glu	Arg	Met	Ser	Val	Ala	Ala	Val	
		705				710					715					720	
35	Asn	Gly	Pro	Ala	Ser	Val	Thr	Val	Ala	Gly	Asp	Ala	Arg	Ala	Leu	Glu	
					725					730					735		
	Glu	Phe	Gly	Gly	Arg	Leu	Ser	Ala	Ala	Gly	Val	Leu	Arg	Trp	Pro	Leu	
				740					745					750			
40	Ala	Gly	Val	Asp	Phe	Ala	Gly	His	Ser	Pro	Gln	Val	Glu	Gln	Phe	Arg	
			755					760					765				
	Ala	Glu	Leu	Leu	Asp	Thr	Leu	Gly	Thr	Val	Arg	Pro	Thr	Ala	Ala	Arg	
45		770					775					780					
	Leu	Pro	Phe	Phe	Ser	Thr	Val	Thr	Ala	Ala	Ala	His	Glu	Pro	Glu	Gly	
		785				790					795					800	
	Leu	Asp	Ala	Ala	Tyr	Trp	Tyr	Arg	Asn	Met	Arg	Glu	Pro	Val	Glu	Phe	
50					805					810					815		
	Ala	Ser	Thr	Leu	Arg	Thr	Leu	Leu	Arg	Glu	Gly	His	Arg	Thr	Phe	Val	
				820					825					830			
55	Glu	Met	Gly	Pro	His	Pro	Leu	Leu	Gly	Ala	Ala	Ile	Asp	Glu	Val	Ala	
			835					840					845				

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	Glu	Ala	Glu	Gly	Val	His	Ala	Thr	Ala	Leu	Ala	Thr	Leu	His	Arg	Gly	
	850						855					860					
5	Ser	Gly	Gly	Leu	Asp	Arg	Phe	Arg	Ser	Ser	Val	Gly	Ala	Ala	Phe	Ala	
	865					870					875					880	
	His	Gly	Val	Arg	Val	Asp	Trp	Asp	Ala	Leu	Phe	Glu	Gly	Ser	Gly	Ala	
					885					890						895	
10	Arg	Arg	Val	Pro	Leu	Pro	Thr	Tyr	Ala	Phe	Ser	Arg	Asp	Arg	Tyr	Trp	
				900					905					910			
	Leu	Pro	Thr	Ala	Ile	Gly	Arg	Arg	Ala	Val	Glu	Ala	Ala	Pro	Val	Asp	
			915					920					925				
15	Ala	Ser	Ala	Pro	Gly	Arg	Tyr	Arg	Val	Thr	Trp	Thr	Pro	Val	Ala	Ser	
		930					935						940				
	Asp	Asp	Ser	Gly	Arg	Pro	Ser	Gly	Arg	Trp	Leu	Leu	Val	Gln	Thr	Pro	
	945					950					955					960	
20	Gly	Thr	Ala	Pro	Asp	Glu	Ala	Asp	Thr	Ala	Ala	Ser	Ala	Leu	Gly	Ala	
					965					970					975		
	Ala	Gly	Val	Val	Val	Glu	Arg	Cys	Leu	Leu	Asp	Pro	Thr	Glu	Ala	Ala	
				980					985					990			
25	Arg	Val	Thr	Leu	Thr	Glu	Arg	Leu	Ala	Glu	Leu	Asp	Ala	Gln	Pro	Glu	
				995				1000					1005				
	Gly	Leu	Ala	Gly	Val	Leu	Val	Leu	Pro	Gly	Arg	Pro	Gln	Ser	Thr	Ala	
30		1010				1015						1020					
	Pro	Ala	Asp	Ala	Ser	Pro	Leu	Asp	Pro	Gly	Thr	Ala	Ala	Val	Leu	Leu	
	1025					1030					1035					1040	
	Val	Val	Gln	Ala	Val	Pro	Asp	Ala	Ala	Pro	Lys	Ala	Arg	Ile	Trp	Val	
35				1045						1050					1055		
	Val	Thr	Arg	Gly	Ala	Val	Ala	Val	Gly	Ser	Gly	Glu	Val	Pro	Cys	Ala	
				1060					1065					1070			
40	Val	Gly	Ala	Arg	Val	Trp	Gly	Leu	Gly	Arg	Val	Ala	Ala	Leu	Glu	Val	
		1075					1080						1085				
	Pro	Val	Gln	Trp	Gly	Gly	Leu	Val	Asp	Val	Ala	Val	Gly	Ala	Gly	Val	
		1090					1095					1100					
45	Arg	Glu	Trp	Arg	Arg	Val	Val	Gly	Val	Val	Ala	Gly	Gly	Gly	Glu	Asp	
	1105					1110					1115					1120	
	Gln	Val	Ala	Val	Arg	Gly	Gly	Gly	Val	Phe	Gly	Arg	Arg	Leu	Val	Gly	
					1125					1130					1135		
50	Val	Gly	Val	Arg	Gly	Gly	Ser	Gly	Val	Trp	Arg	Ala	Arg	Gly	Cys	Val	
				1140					1145					1150			
	Val	Val	Thr	Gly	Gly	Leu	Gly	Gly	Val	Gly	Gly	His	Val	Ala	Arg	Trp	
55				1155				1160					1165				

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	Leu	Ala	Arg	Ser	Gly	Ala	Glu	His	Val	Val	Leu	Ala	Gly	Arg	Arg	Gly	
	1170						1175					1180					
5	Gly	Gly	Val	Val	Gly	Ala	Val	Glu	Leu	Glu	Arg	Glu	Leu	Val	Gly	Leu	
	1185						1190					1195				1200	
	Gly	Ala	Lys	Val	Thr	Phe	Val	Ser	Cys	Asp	Val	Gly	Asp	Arg	Ala	Ser	
							1205					1210				1215	
10	Met	Val	Gly	Leu	Leu	Gly	Val	Val	Glu	Gly	Leu	Gly	Val	Pro	Leu	Arg	
							1220					1225				1230	
	Gly	Val	Phe	His	Ala	Ala	Gly	Val	Ala	Gln	Val	Ser	Gly	Leu	Gly	Glu	
							1235					1240				1245	
15	Val	Ser	Leu	Ala	Glu	Ala	Gly	Gly	Val	Leu	Gly	Gly	Lys	Ala	Val	Gly	
							1250					1255				1260	
	Ala	Glu	Leu	Leu	Asp	Glu	Leu	Thr	Ala	Gly	Val	Glu	Leu	Asp	Ala	Phe	
							1265					1270				1275	
20	Val	Leu	Phe	Ser	Ser	Gly	Ala	Gly	Val	Trp	Gly	Ser	Gly	Gly	Gln	Ser	
							1285					1290				1295	
	Val	Tyr	Ala	Ala	Ala	Asn	Ala	His	Leu	Asp	Ala	Leu	Ala	Glu	Arg	Arg	
							1300					1305				1310	
25	Arg	Ala	Gln	Gly	Arg	Pro	Ala	Thr	Ser	Val	Ala	Trp	Gly	Leu	Trp	Gly	
							1315					1320				1325	
	Gly	Glu	Gly	Met	Gly	Ala	Asp	Glu	Gly	Val	Thr	Glu	Phe	Tyr	Ala	Glu	
							1330					1335				1340	
30	Arg	Gly	Leu	Ala	Pro	Met	Arg	Pro	Glu	Ser	Gly	Ile	Glu	Ala	Leu	His	
							1345					1350				1355	
	Thr	Ala	Leu	Asn	Glu	Gly	Asp	Thr	Cys	Val	Thr	Val	Ala	Asp	Ile	Asp	
							1365					1370				1375	
35	Trp	Glu	His	Phe	Val	Thr	Gly	Phe	Thr	Ala	Tyr	Arg	Pro	Ser	Pro	Leu	
							1380					1385				1390	
40	Ile	Ser	Asp	Ile	Pro	Gln	Val	Arg	Ala	Leu	Arg	Thr	Pro	Glu	Pro	Thr	
							1395					1400				1405	
	Val	Asp	Ala	Ser	Asp	Gly	Leu	Arg	Arg	Arg	Val	Asp	Ala	Ala	Leu	Thr	
							1410					1415				1420	
45	Pro	Arg	Glu	Arg	Thr	Lys	Val	Leu	Val	Asp	Leu	Val	Arg	Thr	Val	Ala	
							1425					1430				1435	
	Ala	Glu	Val	Leu	Gly	His	Asp	Gly	Ile	Gly	Gly	Ile	Gly	His	Asp	Val	
							1445					1450				1455	
50	Ala	Phe	Arg	Asp	Leu	Gly	Phe	Asp	Ser	Leu	Ala	Ala	Val	Arg	Met	Arg	
							1460					1465				1470	
	Gly	Arg	Leu	Ala	Glu	Ala	Thr	Gly	Leu	Val	Leu	Pro	Ala	Thr	Val	Ile	
							1475					1480				1485	
55	Phe	Asp	His	Pro	Thr	Val	Asp	Arg	Leu	Gly	Gly	Ala	Leu	Leu	Glu	Arg	

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	1490		1495		1500
	Leu Ser Ala Asp Glu Pro Ala Pro Gly Gly Ala Pro Glu Pro Ala Gly				
5	1505		1510		1515 1520
	Gly Arg Pro Ala Thr Pro Pro Pro Ala Pro Glu Pro Ala Val His Asp				
		1525		1530	1535
10	Ala Asp Ile Asp Glu Leu Asp Ala Asp Ala Leu Ile Arg Leu Ala Thr				
		1540		1545	1550
	Gly Thr Ala Gly Pro Ala Asp Gly Thr Pro Ala Asp Gly Gly Pro Asp				
		1555		1560	1565
15	Ala Ala Ala Thr Ala Pro Asp Gly Ala Pro Glu Gln				
	1570		1575		1580

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1891 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: unknown

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

30	Met Ser Pro Ser Met Asp Glu Val Leu Gly Ala Leu Arg Thr Ser Val				
	1	5	10	15	
	Lys Glu Thr Glu Arg Leu Arg Arg His Asn Arg Glu Leu Leu Ala Gly				
		20	25	30	
35	Ala His Glu Pro Val Ala Ile Val Gly Met Ala Cys Arg Tyr Pro Gly				
		35	40	45	
	Gly Val Ser Thr Pro Asp Asp Leu Trp Glu Leu Ala Ala Asp Gly Val				
		50	55	60	
40	Asp Ala Ile Thr Pro Phe Pro Ala Asp Arg Gly Trp Asp Glu Asp Ala				
		65	70	75	80
	Val Tyr Ser Pro Asp Pro Asp Thr Pro Gly Thr Thr Tyr Cys Arg Glu				
		85	90	95	
45	Gly Gly Phe Leu Thr Gly Ala Gly Asp Phe Asp Ala Ala Phe Phe Gly				
		100	105	110	
	Ile Ser Pro Asn Glu Ala Leu Val Met Asp Pro Gln Gln Arg Leu Leu				
		115	120	125	
50	Leu Glu Thr Ser Trp Glu Thr Leu Glu Arg Ala Gly Ile Val Pro Ala				
		130	135	140	
55	Ser Leu Arg Gly Ser Arg Thr Gly Val Phe Val Gly Ala Ala His Thr				
		145	150	155	160

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	Gly	Tyr	Val	Thr	Asp	Thr	Ala	Arg	Ala	Pro	Glu	Gly	Thr	Glu	Gly	Tyr	
					165					170					175		
5	Leu	Leu	Thr	Gly	Asn	Ala	Asp	Ala	Val	Met	Ser	Gly	Arg	Ile	Ala	Tyr	
				180					185					190			
	Ser	Leu	Gly	Leu	Glu	Gly	Pro	Ala	Leu	Thr	Ile	Gly	Thr	Ala	Cys	Ser	
			195					200					205				
10	Ser	Ser	Leu	Val	Ala	Leu	His	Leu	Ala	Val	Gln	Ser	Leu	Arg	Arg	Gly	
			210				215					220					
	Glu	Cys	Asp	Leu	Ala	Leu	Ala	Gly	Gly	Val	Ala	Val	Met	Pro	Asp	Pro	
	225					230					235					240	
15	Thr	Val	Phe	Val	Glu	Phe	Ser	Arg	Gln	Arg	Gly	Leu	Ala	Val	Asp	Gly	
					245					250					255		
	Arg	Cys	Lys	Ala	Phe	Ala	Glu	Gly	Ala	Asp	Gly	Thr	Ala	Trp	Ala	Glu	
				260					265					270			
20	Gly	Val	Gly	Val	Leu	Leu	Val	Glu	Arg	Leu	Ser	Asp	Ala	Arg	Arg	Asn	
			275					280					285				
	Gly	His	Arg	Val	Leu	Ala	Val	Val	Arg	Gly	Ser	Ala	Val	Asn	Gln	Asp	
		290					295					300					
25	Gly	Ala	Ser	Asn	Gly	Leu	Thr	Ala	Pro	Ser	Gly	Pro	Ala	Gln	Gln	Arg	
	305					310					315					320	
	Val	Ile	Arg	Glu	Ala	Leu	Ala	Asp	Ala	Gly	Leu	Thr	Pro	Ala	Asp	Val	
					325					330					335		
30	Asp	Val	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Ala	Leu	Gly	Asp	Pro	Ile	
				340					345					350			
	Glu	Ala	Gly	Ala	Leu	Leu	Ala	Thr	Tyr	Gly	Arg	Glu	Arg	Val	Gly	Asp	
			355					360					365				
35	Pro	Leu	Trp	Leu	Gly	Ser	Leu	Lys	Ser	Asn	Ile	Gly	His	Ala	Gln	Ala	
			370				375					380					
	Ala	Ala	Gly	Val	Gly	Gly	Val	Ile	Lys	Val	Val	Gln	Ala	Met	Arg	His	
40	385					390					395					400	
	Gly	Ser	Leu	Pro	Arg	Thr	Leu	His	Val	Asp	Ala	Pro	Ser	Ser	Lys	Val	
					405					410					415		
	Glu	Trp	Ala	Ser	Gly	Ala	Val	Glu	Leu	Leu	Thr	Glu	Gly	Arg	Ser	Trp	
45				420				425						430			
	Pro	Arg	Arg	Val	Glu	Arg	Val	Arg	Arg	Ala	Ala	Val	Ser	Ala	Phe	Gly	
				435				440					445				
50	Val	Ser	Gly	Thr	Asn	Ala	His	Val	Val	Leu	Glu	Glu	Ala	Pro	Val	Glu	
			450				455					460					
	Ala	Gly	Ser	Glu	His	Gly	Asp	Gly	Pro	Gly	Pro	Asp	Arg	Pro	Asp	Ala	
	465					470					475					480	
55	Val	Thr	Gly	Pro	Leu	Pro	Trp	Val	Leu	Ser	Ala	Arg	Ser	Arg	Glu	Ala	

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	485	490	495
5	Leu Arg Gly Gln Ala Gly Arg Leu Ala Ala Leu Ala Arg Gln Gly Arg 500 505 510		
	Thr Glu Gly Thr Gly Gly Gly Ser Gly Leu Val Val Pro Ala Ala Asp 515 520 525		
10	Ile Gly Tyr Ser Leu Ala Thr Thr Arg Glu Thr Leu Glu His Arg Ala 530 535 540		
	Val Ala Leu Val Gln Glu Asn Arg Thr Ala Gly Glu Asp Leu Ala Ala 545 550 555 560		
15	Leu Ala Ala Gly Arg Thr Pro Glu Ser Val Val Thr Gly Val Ala Arg 565 570 575		
	Arg Gly Arg Gly Ile Ala Phe Leu Cys Ser Gly Gln Gly Ala Gln Arg 580 585 590		
20	Leu Gly Ala Gly Arg Glu Leu Arg Gly Arg Phe Pro Val Phe Ala Asp 595 600 605		
	Ala Leu Asp Glu Ile Ala Ala Glu Phe Asp Ala His Leu Glu Arg Pro 610 615 620		
25	Leu Leu Ser Val Met Phe Ala Glu Pro Ala Thr Pro Asp Ala Ala Leu 625 630 635 640		
	Leu Asp Arg Thr Asp Tyr Thr Gln Pro Ala Leu Phe Ala Val Glu Thr 645 650 655		
30	Ala Leu Phe Arg Leu Leu Glu Ser Trp Gly Leu Val Pro Asp Val Leu 660 665 670		
	Val Gly His Ser Ile Gly Gly Leu Val Ala Ala His Val Ala Gly Val 675 680 685		
35	Phe Ser Ala Ala Asp Ala Ala Arg Leu Val Ser Ala Arg Gly Arg Leu 690 695 700		
	Met Arg Ala Leu Pro Glu Gly Gly Ala Met Ala Ala Val Gln Ala Thr 705 710 715 720		
40	Glu Arg Glu Ala Ala Ala Leu Glu Pro Val Ala Ala Gly Gly Ala Val 725 730 735		
	Val Ala Ala Val Asn Gly Pro Gln Ala Leu Val Leu Ser Gly Asp Glu 740 745 750		
45	Ala Ala Val Leu Ala Ala Ala Gly Glu Leu Ala Ala Arg Gly Arg Arg 755 760 765		
	Thr Lys Arg Leu Arg Val Ser His Ala Phe His Ser Pro Arg Met Asp 770 775 780		
50	Ala Met Leu Ala Asp Phe Arg Ala Val Ala Asp Thr Val Asp Tyr His 785 790 795 800		
55	Ala Pro Arg Leu Pro Val Val Ser Glu Val Thr Gly Asp Leu Ala Asp 805 810 815		

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	Ala	Ala	Gln	Leu	Thr	Asp	Pro	Gly	Tyr	Trp	Thr	Arg	Gln	Val	Arg	Gln	
				820					825					830			
5	Pro	Val	Arg	Phe	Ala	Asp	Ala	Val	Arg	Thr	Ala	Ser	Ala	Arg	Asp	Ala	
			835					840					845				
	Ala	Thr	Phe	Ile	Glu	Leu	Gly	Pro	Asp	Ala	Val	Leu	Cys	Gly	Met	Ala	
		850					855					860					
10	Glu	Glu	Ser	Leu	Ala	Ala	Glu	Ala	Asp	Val	Val	Phe	Ala	Pro	Ala	Leu	
	865					870					875					880	
	Arg	Arg	Gly	Arg	Pro	Glu	Gly	Asp	Thr	Val	Leu	Arg	Ala	Ala	Ala	Ser	
15					885					890						895	
	Ala	Tyr	Val	Arg	Gly	Ala	Gly	Leu	Asp	Trp	Ala	Ala	Leu	Tyr	Gly	Gly	
				900					905					910			
	Thr	Gly	Ala	Arg	Arg	Thr	Asp	Leu	Pro	Thr	Tyr	Ala	Phe	Gln	His	Ser	
20			915					920					925				
	Arg	Tyr	Trp	Leu	Ala	Pro	Ala	Ser	Ala	Ala	Val	Ala	Pro	Ala	Thr	Ala	
		930					935					940					
25	Ala	Pro	Ser	Val	Arg	Ser	Val	Pro	Glu	Ala	Glu	Gln	Asp	Gly	Ala	Leu	
	945					950					955					960	
	Trp	Ala	Ala	Val	His	Ala	Gly	Asp	Val	Ala	Ser	Ala	Ala	Ala	Arg	Leu	
				965					970						975		
30	Gly	Ala	Asp	Asp	Ala	Gly	Ile	Glu	His	Glu	Leu	Arg	Ala	Val	Leu	Pro	
				980					985					990			
	His	Leu	Ala	Ala	Trp	His	Asp	Arg	Asp	Arg	Ala	Thr	Ala	Arg	Thr	Ala	
		995						1000					1005				
35	Gly	Leu	His	Tyr	Arg	Val	Thr	Trp	Gln	Ala	Ile	Glu	Ala	Asp	Ala	Val	
		1010					1015					1020					
	Arg	Phe	Ser	Pro	Ser	Asp	Arg	Trp	Leu	Met	Val	Glu	His	Gly	Gln	His	
	1025					1030					1035					1040	
40	Thr	Glu	Cys	Ala	Asp	Ala	Ala	Glu	Arg	Ala	Leu	Arg	Ala	Ala	Gly	Ala	
				1045						1050					1055		
	Glu	Val	Thr	Arg	Leu	Val	Trp	Pro	Leu	Glu	Gln	His	Thr	Gly	Ser	Pro	
				1060					1065					1070			
45	Arg	Thr	Glu	Thr	Pro	Asp	Arg	Gly	Thr	Leu	Ala	Ala	Arg	Leu	Ala	Glu	
			1075					1080					1085				
	Leu	Ala	Arg	Ser	Pro	Glu	Gly	Leu	Ala	Gly	Val	Leu	Leu	Leu	Pro	Asp	
50		1090					1095					1100					
	Ser	Gly	Gly	Ala	Ala	Val	Ala	Gly	His	Pro	Gly	Leu	Asp	Gln	Gly	Thr	
	1105					1110					1115					1120	
	Ala	Ala	Val	Leu	Leu	Thr	Ile	Gln	Ala	Leu	Thr	Asp	Ala	Ala	Val	Arg	
55				1125						1130					1135		

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	Ala Pro Leu Trp Val Val Thr Arg Gly Ala Val Ala Val Gly Ser Gly	
	1140	1145 1150
5	Glu Val Pro Cys Ala Val Gly Ala Arg Val Trp Gly Leu Gly Arg Val	
	1155	1160 1165
	Ala Ala Leu Glu Val Pro Val Gln Trp Gly Gly Leu Val Asp Val Ala	
	1170	1175 1180
10	Val Gly Ala Gly Val Arg Glu Trp Arg Arg Val Val Gly Val Val Ala	
	1185	1190 1195 1200
	Gly Gly Gly Glu Asp Gln Val Ala Val Arg Gly Gly Gly Val Phe Gly	
	1205	1210 1215
15	Arg Arg Leu Val Gly Val Gly Val Arg Gly Gly Ser Gly Val Trp Arg	
	1220	1225 1230
	Ala Arg Gly Cys Val Val Val Thr Gly Gly Leu Gly Gly Val Gly Gly	
	1235	1240 1245
20	His Val Ala Arg Trp Leu Ala Arg Ser Gly Ala Glu His Val Val Leu	
	1250	1255 1260
	Ala Gly Arg Arg Gly Gly Gly Val Val Gly Ala Val Glu Leu Glu Arg	
	1265	1270 1275 1280
25	Glu Leu Val Gly Leu Gly Ala Lys Val Thr Phe Val Ser Cys Asp Val	
	1285	1290 1295
	Gly Asp Arg Ala Ser Val Val Gly Leu Leu Gly Val Val Glu Gly Leu	
30	1300	1305 1310
	Gly Val Pro Leu Arg Gly Val Phe His Ala Ala Gly Val Ala Gln Val	
	1315	1320 1325
	Ser Gly Leu Gly Glu Val Ser Leu Ala Glu Ala Gly Gly Val Leu Gly	
35	1330	1335 1340
	Gly Lys Ala Val Gly Ala Glu Leu Leu Asp Glu Leu Thr Ala Gly Val	
	1345	1350 1355 1360
	Glu Leu Asp Ala Phe Val Leu Phe Ser Ser Gly Ala Gly Val Trp Gly	
40	1365	1370 1375
	Ser Gly Gly Gln Ser Val Tyr Ala Ala Ala Asn Ala His Leu Asp Ala	
	1380	1385 1390
	Leu Ala Glu Arg Arg Arg Ala Gln Gly Arg Pro Ala Thr Ser Val Ala	
45	1395	1400 1405
	Trp Gly Pro Trp Asp Gly Asp Gly Met Gly Glu Met Ala Pro Glu Gly	
	1410	1415 1420
50	Tyr Phe Ala Arg His Gly Val Ala Pro Leu His Pro Glu Thr Ala Leu	
	1425	1430 1435 1440
	Thr Ala Leu His Gln Ala Ile Asp Gly Gly Glu Ala Thr Val Thr Val	
	1445	1450 1455
55	Ala Asp Ile Asp Trp Glu Arg Phe Ala Pro Gly Phe Thr Ala Phe Arg	

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	1460	1465	1470
5	Pro Ser Pro Leu Ile Ala Gly 1475	Ile Pro Ala Ala Arg 1480	Thr Ala Pro Ala 1485
	Ala Gly Arg Pro Ala Glu 1490	Asp Thr Pro Thr Ala 1495	Pro Gly Leu Leu Arg 1500
10	Ala Arg Pro Glu Asp Arg Pro Arg Leu Ala 1505	Leu Asp Leu Val Leu Arg 1510	1515 1520
	His Val Ala Ala Val Leu Gly 1525	His Ser Glu Asp Ala Arg 1530	Val Asp Ala 1535
15	Arg Ala Pro Phe Arg Asp Leu Gly 1540	Phe Asp Ser Leu Ala Ala Val Arg 1545	1550
	Leu Arg Arg Arg Leu Ala Glu 1555	Asp Thr Gly Leu Asp Leu Pro Gly Thr 1560	1565
20	Leu Val Phe Asp His Glu 1570	Asp Pro Thr Ala Leu Ala His His Leu Ala 1575	1580
	Gly Leu Ala Asp Ala Gly Thr Pro Gly Pro 1585	Gln Glu Gly Thr Ala Arg 1590	1595 1600
25	Ala Glu Ser Gly Leu Phe Ala Ser Phe Arg Ala Ala Val Glu Gln Arg 1605	1610	1615
	Arg Ser Ser Glu Val Val Glu Leu Met Ala Asp Leu Ala Ala Phe Arg 1620	1625	1630
30	Pro Ala Tyr Ser Arg Gln His Pro Gly Ser Gly Arg Pro Ala Pro Val 1635	1640	1645
	Pro Leu Ala Thr Gly Pro Ala Thr Arg Pro Thr Leu Tyr Cys Cys Ala 1650	1655	1660
35	Gly Thr Ala Val Gly Ser Gly Pro Ala Glu Tyr Val Pro Phe Ala Glu 1665	1670	1675 1680
	Gly Leu Arg Gly Val Arg Glu Thr Val Ala Leu Pro Leu Ser Gly Phe 1685	1690	1695
40	Gly Asp Pro Ala Glu Pro Met Pro Ala Ser Leu Asp Ala Leu Ile Glu 1700	1705	1710
	Val Gln Ala Asp Val Leu Leu Glu His Thr Ala Gly Lys Pro Phe Ala 1715	1720	1725
45	Leu Ala Gly His Ser Ala Gly Ala Asn Ile Ala His Ala Leu Ala Ala 1730	1735	1740
	Arg Leu Glu Glu Arg Gly Ser Gly Pro Ala Ala Val Val Leu Met Asp 1745	1750	1755 1760
50	Val Tyr Arg Pro Glu Asp Pro Gly Ala Met Gly Glu Trp Arg Asp Asp 1765	1770	1775
55	Leu Leu Ser Trp Ala Leu Glu Arg Ser Thr Val Pro Leu Glu Asp His 1780	1785	1790

Arg Leu Thr Ala Met Ala Gly Tyr Gln Arg Leu Val Leu Gly Thr Arg
 1795 1800 1805
 5 Leu Thr Ala Leu Glu Ala Pro Val Leu Leu Ala Arg Ala Ser Glu Pro
 1810 1815 1820
 Leu Cys Ala Trp Pro Pro Ala Gly Gly Ala Arg Gly Asp Trp Arg Ser
 1825 1830 1835 1840
 10 Gln Val Pro Phe Ala Arg Thr Val Ala Asp Val Pro Gly Asn His Phe
 1845 1850 1855
 Thr Met Leu Thr Glu His Ala Arg His Thr Ala Ser Leu Val His Glu
 1860 1865 1870
 15 Trp Leu Asp Ser Leu Pro His Gln Pro Gly Pro Ala Pro Leu Thr Gly
 1875 1880 1885
 Gly Lys His
 20 1890

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:
 25 (A) LENGTH: 13987 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:
 (A) NAME/KEY: CDS
 (B) LOCATION: 350..13987

35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

GACCGCTCGG GGAGACCTGA CATATTCGTC GCGAAGTGGT TGTCCGCGCC GCGAGGTACT 60
 40 GAAATCTTCT CCGCTCGCCC AGGACTCCGC GTGCAGGTCA CCGGAGTGCG CGACCGGCCG 120
 GGACGTCGGA GCGCCGACCC TCGGACCTG GTGCGATGCC GTGTGGTCCC GCATGATCCC 180
 GCGCCGTCTC CCGTGACGAG AATCGGTGGA CAATCTCCGA ACTTGACACA ATTGATTGTC 240
 45 GTTACCCGGC CGTTCCTGTC GCCCGGCAGT TCGCCCGCTG TACGCTCGGG AAGATCAAGA 300
 AAAGGCAGAA AAGCCACGGC GTGGTACGGC GAACATATGA GGGATGCAG GTG TCT 355
 Met Ser
 1
 50 GGA GAA CTC GCG ATT TCC CGC AGT GAC GAC CGG TCC GAC GCC GTT GCC 403
 Gly Glu Leu Ala Ile Ser Arg Ser Asp Asp Arg Ser Asp Ala Val Ala
 5 10 15
 55 GTG GTC GGA ATG GCG TGC CGG TTT CCC GGC GCC CCG GGA ATT GCC GAA 451
 Val Val Gly Met Ala Cys Arg Phe Pro Gly Ala Pro Gly Ile Ala Glu

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	260	265	270	
5	GCG CAG GAA GCT GTG CTG CGC CAG GCC TAC CGG CGG GCG GGC GTC AGC Ala Gln Glu Ala Val Leu Arg Gln Ala Tyr Arg Arg Ala Gly Val Ser 275 280 285 290			1219
	ACC GGC GCC GTC CGC TAC GTC GAG CTG CAC GGG ACC GGC ACC CGG GCC Thr Gly Ala Val Arg Tyr Val Glu Leu His Gly Thr Gly Thr Arg Ala 295 300 305			1267
10	GGC GAC CCC GTC GAG GCG GCC GCA CTG GGC GCC GTG CTC GGG GCG GGG Gly Asp Pro Val Glu Ala Ala Ala Leu Gly Ala Val Leu Gly Ala Gly 310 315 320			1315
15	GCG GAC AGC GGC CGC AGC ACG CCG CTC GCC GTC GGC TCG GTG AAG ACC Ala Asp Ser Gly Arg Ser Thr Pro Leu Ala Val Gly Ser Val Lys Thr 325 330 335			1363
20	AAC GTC GGC CAT CTG GAG GGC GCG GCG GGC ATC GTC GGA CTG ATC AAG Asn Val Gly His Leu Glu Gly Ala Ala Gly Ile Val Gly Leu Ile Lys 340 345 350			1411
	GCC ACG CTG TGC GTA CGG AAG GGC GAA CTC GTC CCC AGC CTC AAC TTC Ala Thr Leu Cys Val Arg Lys Gly Glu Leu Val Pro Ser Leu Asn Phe 355 360 365 370			1459
25	AGC ACG CCG AAC CCT GAC ATC CCC CTC GAC GAC CTG CGG CTG CGC GTC Ser Thr Pro Asn Pro Asp Ile Pro Leu Asp Asp Leu Arg Leu Arg Val 375 380 385			1507
30	CAG ACC GAA CGG CAG GAG TGG AAC GAG GAG GAC GAC CGG CCG CGC GTG Gln Thr Glu Arg Gln Glu Trp Asn Glu Glu Asp Asp Arg Pro Arg Val 390 395 400			1555
35	GCC GGC GTC TCC TCC TTC GGT ATG GGC GGA ACC AAT GTC CAC CTC GTG Ala Gly Val Ser Ser Phe Gly Met Gly Gly Thr Asn Val His Leu Val 405 410 415			1603
	ATC GCG GAG GCT CCG GCC GCG GCG GGG TCC TCC GGG GCG GGG GGT TCG Ile Ala Glu Ala Pro Ala Ala Gly Ser Ser Gly Ala Gly Gly Ser 420 425 430			1651
40	GGC GCT GGT TCC GGT GCC GGT ATC AGC GCT GTT TCT GGT GTG GTG CCG Gly Ala Gly Ser Gly Ala Gly Ile Ser Ala Val Ser Gly Val Val Pro 435 440 445 450			1699
45	GTG GTG GTT TCG GGG CGT TCG CGG GTG GTG GTG CGG GAG GCT GCG GGC Val Val Val Ser Gly Arg Ser Arg Val Val Val Arg Glu Ala Ala Gly 455 460 465			1747
	CGG TTG GCG GAG GTG GTG GAG GCC GGT GGT GTG GGG CTG GCG GAT GTG Arg Leu Ala Glu Val Val Glu Ala Gly Gly Val Gly Leu Ala Asp Val 470 475 480			1795
50	GCG GTG ACG ATG GCG GAC CGG TCG CGG TTT GGG TAT CGG GCG GTT GTG Ala Val Thr Met Ala Asp Arg Ser Arg Phe Gly Tyr Arg Ala Val Val 485 490 495			1843
55	CTG GCT CGG GGT GAG GCT GAG CTT GCC GGG CGT TTG CGG GCG TTG GCG Leu Ala Arg Gly Glu Ala Glu Leu Ala Gly Arg Leu Arg Ala Leu Ala			1891

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	500	505	510	
5	GGG GGT GAT CCG GAC GCG GGT GTG GTC ACC GGT GCG GTT CTC GAC GGT Gly Gly Asp Pro Asp Ala Gly Val Val Thr Gly Ala Val Leu Asp Gly 515 520 525 530			1939
10	GGT GTG GTT GTC GGT GCT GCC CCC GGC GGT GCC GGT GCT GCC GGT GGT Gly Val Val Val Gly Ala Ala Pro Gly Gly Ala Gly Ala Ala Gly Gly 535 540 545			1987
15	GCC GGT GCT GCC GGT GGT GCC GGT GGT GGG GGC GTG GTG TTG GTT TTC Ala Gly Ala Ala Gly Gly Ala Gly Gly Gly Val Val Leu Val Phe 550 555 560			2035
20	CCT GGT CAG GGG ACG CAG TGG GTG GGG ATG GGT GCG GGG CTG CTG GGG Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala Gly Leu Leu Gly 565 570 575			2083
25	TCT TCG GAG GTG TTT GCG GCG TCG ATG CCG GAG TGT GCG CCG GCG CTG Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys Ala Arg Ala Leu 580 585 590			2131
30	AGT GTT CAT GTG GGG TGG GAT TTG CTG GAG GTG GTG TCG GCG GGG GCC Ser Val His Val Gly Trp Asp Leu Leu Glu Val Val Ser Gly Gly Ala 595 600 605 610			2179
35	GCG TTG GAG CCG GTG GAT GTG GTG CAG CCG GTG ACG TGG GCG GTG ATG Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Trp Ala Val Met 615 620 625			2227
40	GTG TCG CTG GCC CCG TAC TGG CAG GCG ATG GGT GTG GAC GTG GCT GCG Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val Asp Val Ala Ala 630 635 640			2275
45	GTG GTG GGT CAT TCC CAG GGG GAG ATC GCC GCT GCC ACG GTG GCG GGG Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Thr Val Ala Gly 645 650 655			2323
50	GCG TTG TCG CTG GAG GAT GCG GCG GCT GTG GTC GCT CTG CCG GCG GGG Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala Leu Arg Ala Gly 660 665 670			2371
55	TTG ATT GGC CCG TAT CTG GCG GGT CGT GGT GCG ATG GCG GCT GTT CCG Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met Ala Ala Val Pro 675 680 685 690			2419
60	CTG CCT GCC GGC GAG GTC GAG GCC GGG CTG GCG AAG TGG CCG GGT GTG Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys Trp Pro Gly Val 695 700 705			2467
65	GAG GTC GCG GCG GTC AAC GGT CCG GCG TCT ACG GTG GTT TCC GCG GAT Glu Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val Val Ser Gly Asp 710 715 720			2515
70	CGG CCG GCG GTG GCC GGT TAT GTG GCC GTC TGT CAG CCG GAG GGT GTG Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln Ala Glu Gly Val 725 730 735			2563
75	CAG GCC CCG TTG ATA CCG GTG GAC TAC GCC TCT CAC TCC CCG CAT GTG Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His Ser Arg His Val			2611

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	740	745	750	
5	GAG GAC CTG AAG GGC GAG TTG GAG CGG GTG CTG TCC GGT ATC CGC CCC Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser Gly Ile Arg Pro 755 760 765 770			2659
	CGC AGT CCG CGG GTG CCG GTG TGT TCC ACC GTC GCC GGA GAG CAG CCG Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala Gly Glu Gln Pro 775 780 785			2707
10	GGC GAG CCG GTT TTC GAT GCG GGG TAT TGG TTC CGT AAT CTG CGG AAC Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn Leu Arg Asn 790 795 800			2755
15	CGG GTT GAG TTC TCC GCG GTG GTC GGT GGT TTG TTG GAG GAG GGC CAC Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu Glu Gly His 805 810 815			2803
20	CGT CGG TTC ATC GAG GTC AGT GCC CAC CCG GTA CTC GTC CAT GCG ATC Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu Val His Ala Ile 820 825 830			2851
	GAG CAG ACG GCC GAG GCC GCG GAC CGG AGT GTC CAT GCC ACC GGG ACC Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala Thr Gly Thr 835 840 845 850			2899
25	CTG CGC CGC CAG GAC GAC AGC CCG CAC CGC CTG CTG ACC TCC ACC GCC Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr Ser Thr Ala 855 860 865			2947
30	GAG GCC TGG GCC CAC GGC GCC ACC CTC ACC TGG GAC CCC GCC CTG CCC Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro Ala Leu Pro 870 875 880			2995
35	CCA GGC CAC CTC ACC ACC CTC CCC ACC TAC CCC TTC AAC CAC CAC CAC Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn His His His 885 890 895			3043
	TAC TGG CTC GAC ACC ATT GAC GGG GGC GGA GGG GAC GAC GCG ACC CAG Tyr Trp Leu Asp Thr Ile Asp Gly Gly Gly Gly Asp Asp Ala Thr Gln 900 905 910			3091
40	GAG AAG GAG AGC GGC CCT CTG ACG CGG GAA CTG CGT GGG CTG CCG TCC Glu Lys Glu Ser Gly Pro Leu Thr Arg Glu Leu Arg Gly Leu Pro Ser 915 920 925 930			3139
45	TCT CAG AAG CAA CTG GGT TTC CTG CTC GAT CTG GTG TGC CGG CAC ACG Ser Gln Lys Gln Leu Gly Phe Leu Leu Asp Leu Val Cys Arg His Thr 935 940 945			3187
	GCC GTC GTA CTC GGC CTG GAC ACG GCC GCC GAG GTG GAC CCG GAC CTG Ala Val Val Leu Gly Leu Asp Thr Ala Ala Glu Val Asp Pro Asp Leu 950 955 960			3235
50	TCC TTC AAG AAG CAG GGC ATC CAG TCC ATG ACC GGC GTC GAG CTG CGC Ser Phe Lys Lys Gln Gly Ile Gln Ser Met Thr Gly Val Glu Leu Arg 965 970 975			3283
55	AAC AGG CTG CTG ACC GAG ACC GGC CTG GCA TTG CCC ACC ACC CTC GTC Asn Arg Leu Leu Thr Glu Thr Gly Leu Ala Leu Pro Thr Thr Leu Val			3331

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	980	985	990	
5	TAC GAC CGG CCC ACC CCT CGC GCC CTG GCG CAG TTC CTC CAC ACC GAG Tyr Asp Arg Pro Thr Pro Arg Ala Leu Ala Gln Phe Leu His Thr Glu 995 1000 1005 1010	3379		
10	TTG CTC GAC GGC TCC CCC TCG GGC TCC GTC CTC GCA CCG GCG CAG AAG Leu Leu Asp Gly Ser Pro Ser Gly Ser Val Leu Ala Pro Ala Gln Lys 1015 1020 1025	3427		
15	AGC TTC GAG GCC GGC GGC CCC GGA GTG CTC TCG TCG GCC GCG GTA GGG Ser Phe Glu Ala Gly Gly Pro Gly Val Leu Ser Ser Ala Ala Val Gly 1030 1035 1040	3475		
20	GTG TCG GAC GCC CGG GGC GGC AGC CGG GAC GAC GAC GAC CCG ATC GCC Val Ser Asp Ala Arg Gly Gly Ser Arg Asp Asp Asp Asp Pro Ile Ala 1045 1050 1055	3523		
25	ATC GTG GGT GTC GGC TGC CGG CTC CCC GGC GGC GTC GAC TCG CGC GCC Ile Val Gly Val Gly Cys Arg Leu Pro Gly Gly Val Asp Ser Arg Ala 1060 1065 1070	3571		
30	GCT CTC TGG GAG CTG CTG GAG TCC GGC GCC GAC GCC ATC TCG TCC TTC Ala Leu Trp Glu Leu Leu Glu Ser Gly Ala Asp Ala Ile Ser Ser Phe 1075 1080 1085 1090	3619		
35	CCC ACC GAC CGC GGC TGG GAC CTC GAC GGC CTG TAC GAC CCC GAG CCC Pro Thr Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr Asp Pro Glu Pro 1095 1100 1105	3667		
40	GGG ACG CCC GGC AAG ACC TAT GTG CGG GAG GGC GGC TTC CTG CAC TCG Gly Thr Pro Gly Lys Thr Tyr Val Arg Glu Gly Gly Phe Leu His Ser 1110 1115 1120	3715		
45	GCG GCC GAG TTC GAC GCG GAG TTC TTC GGC ATA TCG CCG CGC GAG GCC Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala 1125 1130 1135	3763		
50	ACG GCC ATG GAC CCG CAG CAG CGC TTG CTG CTG GAA GCG TCG TGG GAG Thr Ala Met Asp Pro Gln Arg Leu Leu Leu Ala Ser Trp Glu 1140 1145 1150	3811		
55	GCC CTC GAG GAC GCC GGA GTG CTC CCC GAG TCA CTG CGC GGC GGC GAC Ala Leu Glu Asp Ala Gly Val Leu Pro Glu Ser Leu Arg Gly Gly Asp 1155 1160 1165 1170	3859		
60	GCC GGA GTG TTC GTC GGC GCC ACC GCA CCG GAG TAC GGC CCG AGG CTT Ala Gly Val Phe Val Gly Ala Thr Ala Pro Glu Tyr Gly Pro Arg Leu 1175 1180 1185	3907		
65	CAC GAG GGA GCG GAC GGA TAC GAG GGC TAC CTG CTC ACC GGC ACC ACC His Glu Gly Ala Asp Gly Tyr Glu Gly Tyr Leu Leu Thr Gly Thr Thr 1190 1195 1200	3955		
70	GCG AGC GTG GCC TCC GGC CGG ATC GCC TAC ACC CTC GGC ACC GGC GGA Ala Ser Val Ala Ser Gly Arg Ile Ala Tyr Thr Leu Gly Thr Gly Gly 1205 1210 1215	4003		
75	CCG GCG CTC ACC GTC GAC ACC GCG TGC TCC TCG TCC CTG GTG GCG CTG Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu 1220 1225 1230 1235 1240 1245	4051		

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	1220	1225	1230	
5	CAC CTG GCC GTG CAG GCG CTG CGC CGG GGC GAG TGC GGG CTG GCT CTG His Leu Ala Val Gln Ala Leu Arg Arg Gly Glu Cys Gly Leu Ala Leu 1235 1240 1245 1250	4099		
	GCG GGC GGC GCC ACG GTG ATG TCG GGG CCC GGC ATG TTC GTG GAG TTC Ala Gly Gly Ala Thr Val Met Ser Gly Pro Gly Met Phe Val Glu Phe 1255 1260 1265	4147		
10	TCG CGG CAG CGC GGG CTC GCC CCC GAC GGC CGC TGC ATG CCG TTC TCC Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Met Pro Phe Ser 1270 1275 1280	4195		
15	GCC GAT GCC GAC GGT ACG GCC TGG TCC GAG GGT GTC GCC GTA CTG GCA Ala Asp Ala Asp Gly Thr Ala Trp Ser Glu Gly Val Ala Val Leu Ala 1285 1290 1295	4243		
20	CTG GAG CGG CTC TCC GAC GCC CGG CGT GCG GGA CAC CGG GTG CTG GGC Leu Glu Arg Leu Ser Asp Ala Arg Arg Ala Gly His Arg Val Leu Gly 1300 1305 1310	4291		
	GTG GTG CGG GGC AGT GCG GTC AAC CAG GAC GGT GCC AGC AAC GGC CTG Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu 1315 1320 1325 1330	4339		
25	ACC GCT CCC AAC CGC TCC GCG CAG GAG GGC GTC ATC CGA GCT GCC CTG Thr Ala Pro Asn Arg Ser Ala Gln Glu Gly Val Ile Arg Ala Ala Leu 1335 1340 1345	4387		
30	GCC GAC GCC GGC CTC GCG CCG GGT GAC GTG GAC GCG GTG GAG GCG CAC Ala Asp Ala Gly Leu Ala Pro Gly Asp Val Asp Ala Val Glu Ala His 1350 1355 1360	4435		
	GGT ACG GGG ACG GCG CTG GGC GAT CCG ATC GAG GCG AGC GCG CTG CTG Gly Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Ala Ser Ala Leu Leu 1365 1370 1375	4483		
35	GCC ACG TAC GGG CGT GAG CCG GTG GGC GAC CCC TTG TGG CTC GGG TCG Ala Thr Tyr Gly Arg Glu Arg Val Gly Asp Pro Leu Trp Leu Gly Ser 1380 1385 1390	4531		
40	CTG AAG TCC AAC GTC GGT CAC ACC CAG GCC GCC GCG GGG GCC GCG GGT Leu Lys Ser Asn Val Gly His Thr Gln Ala Ala Ala Gly Ala Ala Gly 1395 1400 1405 1410	4579		
45	GTG GTC AAG ATG CTG CTT GCC CTG GAG CAC GGC ACG CTG CCG CGG ACA Val Val Lys Met Leu Leu Ala Leu Glu His Gly Thr Leu Pro Arg Thr 1415 1420 1425	4627		
	CTT CAC GCG GAC CGG CCC AGC ACG CAC GTC GAC TGG TCG TCG GGC ACC Leu His Ala Asp Arg Pro Ser Thr His Val Asp Trp Ser Ser Gly Thr 1430 1435 1440	4675		
50	GTC GCC CTG CTG GCA GAG GCG CGC CGG TGG CCC CGG CGG TCG GAC CGC Val Ala Leu Leu Ala Glu Ala Arg Arg Trp Pro Arg Arg Ser Asp Arg 1445 1450 1455	4723		
55	CCG CGC CGG GCG GCT GTG TCG TCG TTC GGG ATC AGT GGG ACG AAC GCG Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala	4771		

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	1460	1465	1470	
5	CAT CTG ATC ATC GAG GAG GCG CCG GAG TGG GTC GAG GAC ATC GAC GGC His Leu Ile Ile Glu Glu Ala Pro Glu Trp Val Glu Asp Ile Asp Gly 1475 1480 1485 1490	4819		
	GTC GCT GCT CCT GAC CGC GGT ACC GCG GAC GCG GCT GCT CCG TCG CCG Val Ala Ala Pro Asp Arg Gly Thr Ala Asp Ala Ala Pro Ser Pro 1495 1500 1505	4867		
10	CTG TTG TTG TCC GCG CGG TCG GAG GGG GCG TTG CCG GCG CAG GCG GTG Leu Leu Leu Ser Ala Arg Ser Glu Gly Ala Leu Arg Ala Gln Ala Val 1510 1515 1520	4915		
15	CGG TTG GGT GAG TAC GTG GAG CGG GTG GGT GCG GAT CCG CGG GAT GTG Arg Leu Gly Glu Tyr Val Glu Arg Val Gly Ala Asp Pro Arg Asp Val 1525 1530 1535	4963		
20	GCT TAT TCG CTG GCT TCG ACG CGG ACT CTT TTC GAG CAC CGT GCG GTG Ala Tyr Ser Leu Ala Ser Thr Arg Thr Leu Phe Glu His Arg Ala Val 1540 1545 1550	5011		
	GTG CCG TGT GGT GGG CGT GGG GAG CTC GTC GCT GCT CTT GGT GGG TTT Val Pro Cys Gly Gly Arg Gly Glu Leu Val Ala Ala Leu Gly Gly Phe 1555 1560 1565 1570	5059		
25	GCT GCC GGG AGG GTG TCT CCG GGT GTG CCG TCC GGG CGG GCT GTG CCG Ala Ala Gly Arg Val Ser Gly Gly Val Arg Ser Gly Arg Ala Val Pro 1575 1580 1585	5107		
30	GGT GGG GTG GGG GTG TTG TTC ACG GGT CAG GGT GCG CAG TGG GTT GGT Gly Gly Val Gly Val Leu Phe Thr Gly Gln Gly Ala Gln Trp Val Gly 1590 1595 1600	5155		
	ATG GGG CGT GGG TTG TAT GCG GGG GGT GGG GTG TTT GCG GAG GTG CTG Met Gly Arg Gly Leu Tyr Ala Gly Gly Gly Val Phe Ala Glu Val Leu 1605 1610 1615	5203		
35	GAT GAG GTG TTG TCG ATG GTG GGG GAG GTG GAT GGT CCG TCG TTG CCG Asp Glu Val Leu Ser Met Val Gly Glu Val Asp Gly Arg Ser Leu Arg 1620 1625 1630	5251		
40	GAT GTG ATG TTC GGC GAC GTC GAC GTG GAC GCG GGT GCC GGG GCT GAT Asp Val Met Phe Gly Asp Val Asp Val Asp Ala Gly Ala Gly Ala Asp 1635 1640 1645 1650	5299		
45	GCG GGT GCC GGT GCG GGT GCT GGG GTC GGT TCT GGT TCC GGT TCT GTG Ala Gly Ala Gly Ala Gly Ala Gly Val Gly Ser Gly Ser Gly Ser Val 1655 1660 1665	5347		
	GGT GGG TTG TTG GGT CCG ACG GAG TTT GCT CAG CCT GCG CTG TTT GCG Gly Gly Leu Leu Gly Arg Thr Glu Phe Ala Gln Pro Ala Leu Phe Ala 1670 1675 1680	5395		
50	TTG GAG GTG GCG TTG TTC CCG GCG TTG GAG GCT CCG GGT GTG GAG GTG Leu Glu Val Ala Leu Phe Arg Ala Leu Glu Ala Arg Gly Val Glu Val 1685 1690 1695	5443		
55	TCG GTG GTG TTG GGT CAT TCG GTG GGG GAG GTG GCT GCT GCG TAT GTG Ser Val Val Leu Gly His Ser Val Gly Glu Val Ala Ala Ala Tyr Val	5491		

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	1700	1705	1710	
5	CGC GGG GTG TTG TCG TTG GGT GAT GCG GTG CCG TTG GTG GTG GCG CCG Ala Gly Val Leu Ser Leu Gly Asp Ala Val Arg Leu Val Val Ala Arg 1715 1720 1725 1730	5539		
10	GGT GGG TTG ATG GGT GGG TTG CCG GTG GGT GGG GGG ATG TCG TCG GTG Gly Gly Leu Met Gly Gly Leu Pro Val Gly Gly Met Trp Ser Val 1735 1740 1745	5587		
15	GGG GCG TCG GAG TCG GTG GTG CCG GGG GTT GTT GAG GGG TTG GGG GAG Gly Ala Ser Glu Ser Val Val Arg Gly Val Val Glu Gly Leu Gly Glu 1750 1755 1760	5635		
20	TGG GTG TCG GTT GCG GCG GTG AAT GGG CCG CCG TCG GTG GTG TTG TCG Trp Val Ser Val Ala Ala Val Asn Gly Pro Arg Ser Val Val Leu Ser 1765 1770 1775	5683		
25	GGT GAT GTG GGT GTG CTG GAG TCG GTG GTT GCC TCG CTG ATG GGG GAT Gly Asp Val Gly Val Leu Glu Ser Val Val Ala Ser Leu Met Gly Asp 1780 1785 1790	5731		
30	GGG GTG GAG TGC CCG CCG TTG GAT GTG TCG CAT GGG TTT CAT TCG GTG Gly Val Glu Cys Arg Arg Leu Asp Val Ser His Gly Phe His Ser Val 1795 1800 1805 1810	5779		
35	TTG ATG GAG CCG GTG TTG CCG GAG TTC CCG GGG GTT GTG GAG TCG TTG Leu Met Glu Pro Val Leu Gly Glu Phe Arg Gly Val Val Glu Ser Leu 1815 1820 1825	5827		
40	GAG TTC GGT CCG GTG CCG CCG GGT GTG GTG GTG GTG TCG GGT GTG TCG Glu Phe Gly Arg Val Arg Pro Gly Val Val Val Val Ser Gly Val Ser 1830 1835 1840	5875		
45	GGT GGG GTG GTG GGT TCG GGG GAG TTG GGG GAT CCG GGG TAT TGG GTG Gly Gly Val Val Gly Ser Gly Glu Leu Gly Asp Pro Gly Tyr Trp Val 1845 1850 1855	5923		
50	CGT CAT GCG CCG GAG GCG GTG CGT TTC GCG GAT GGG GTG GGG GTG GTG Arg His Ala Arg Glu Ala Val Arg Phe Ala Asp Gly Val Gly Val Val 1860 1865 1870	5971		
55	CGT GGT CTG GGT GTG GGG ACG TTG GTG GAG GTG GGT CCG CAT GGG GTG Arg Gly Leu Gly Val Gly Thr Leu Val Glu Val Gly Pro His Gly Val 1875 1880 1885 1890	6019		
60	CTG ACG GGG ATG GCG GGT GAG TGC CTG GGG GCC GGT GAT GAT GTG GTG Leu Thr Gly Met Ala Gly Glu Cys Leu Gly Ala Gly Asp Asp Val Val 1895 1900 1905	6067		
65	GTG GTG CCG GCG ATG CCG CCG GCG CGT GCG GAG CCG GAG GTG TTC GAG Val Val Pro Ala Met Arg Arg Gly Arg Ala Glu Arg Glu Val Phe Glu 1910 1915 1920	6115		
70	GCG GCG CTG GCG ACG GTG TTC ACC CCG GAC GCC GGC CTG GAC GCC ACG Ala Ala Leu Ala Thr Val Phe Thr Arg Asp Ala Gly Leu Asp Ala Thr 1925 1930 1935	6163		
75	GCA CTC CAC ACC GGG AGC ACC GGC CCG CGC ATC GAC CTC CCC ACC TAC Ala Leu His Thr Gly Ser Thr Gly Arg Arg Ile Asp Leu Pro Thr Tyr	6211		

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	1940	1945	1950		
5	CCC TTC CAA CGC GAC Pro Phe Gln Arg Asp 1955	CGC TAC TGG CTG GAC Arg Tyr Trp Leu Asp 1960	CCC GTT CGC ACC GCC GTG Pro Val Arg Thr Ala Val 1965	6259	
10	ACC GGC GTC GAG CCC GCC GGC TCG CCG GCG GAC GCT CGG GCC ACT GAG Thr Gly Val Glu Pro Ala Gly Ser Pro Ala Asp Ala Arg Ala Thr Glu 1975	1980	1985	6307	
15	CGG GGA CGG TCG ACG ACG GCC GGG ATC CGC TAC CGC GTC GCT TGG CAG Arg Gly Arg Ser Thr Thr Ala Gly Ile Arg Tyr Arg Val Ala Trp Gln 1990	1995	2000	6355	
20	CCG GCC GTC GTC GAC CGC GGC AAC CCC GGG CCT GCC GGT CAT GTG CTG Pro Ala Val Val Asp Arg Gly Asn Pro Gly Pro Ala Gly His Val Leu 2005	2010	2015	6403	
25	CTT CTG GCC CCG GAC GAG GAC ACG GCC GAC TCC GGA CTC GCC CCC GCG Leu Leu Ala Pro Asp Glu Asp Thr Ala Asp Ser Gly Leu Ala Pro Ala 2020	2025	2030	6451	
30	ATC GCA CGT GAA CTC GCC GTG CGC GGG GCC GAG GTC CAC ACC GTC GCC Ile Ala Arg Glu Leu Ala Val Arg Gly Ala Glu Val His Thr Val Ala 2035	2040	2045	6499	
35	GTG CCG GTC GGT ACA GGC CCG GAG GCA GCC GGG GAC CTG TTG CCG GCC Val Pro Val Gly Thr Gly Arg Glu Ala Ala Gly Asp Leu Leu Arg Ala 2055	2060	2065	6547	
40	GCC GGT GAC GGT GCC GCC CGC AGC ACC CGA GTT CTG TGG CTC GCC CCG Ala Gly Asp Gly Ala Ala Arg Ser Thr Arg Val Leu Trp Leu Ala Pro 2070	2075	2080	6595	
45	GCC GAG CCG GAC GCG GCC GAC GCC GTC GCC CTC GTC CAG GCG CTG GGC Ala Glu Pro Asp Ala Ala Asp Ala Val Ala Leu Val Gln Ala Leu Gly 2085	2090	2095	6643	
50	GAG GCG GTA CCC GAA GCC CCG CTC TGG ATC ACC ACC CGT GAG GCG GCG Glu Ala Val Pro Glu Ala Pro Leu Trp Ile Thr Thr Arg Glu Ala Ala 2100	2105	2110	6691	
55	GCC GTG CCG CCG GAC GAG ACC CCT TCC GTC GGG GGC GCT CAG CTG TGG Ala Val Arg Pro Asp Glu Thr Pro Ser Val Gly Gly Ala Gln Leu Trp 2115	2120	2125	2130	6739
60	GGA CTC GGA CAG GTC GCC GCG CTC GAA CTG GGG CCG CGC TGG GGC GGC Gly Leu Gly Gln Val Ala Ala Leu Glu Leu Gly Arg Arg Trp Gly Gly 2135	2140	2145	6787	
65	TTG GCG GAC CTG CCC GGG AGT GCG TCG CCC GCG GTG CTC CGT ACG TTC Leu Ala Asp Leu Pro Gly Ser Ala Ser Pro Ala Val Leu Arg Thr Phe 2150	2155	2160	6835	
70	GTC GGG GCG CTG CTC GCC GGG GGA GAG AAC CAG TTC GCG GTA CCG CCC Val Gly Ala Leu Leu Ala Gly Gly Glu Asn Gln Phe Ala Val Arg Pro 2165	2170	2175	6883	
75	TCC GGC GTC CAT GTC CGC CGT GTG GTT CCC GCG CCC GTC CCC GTC CCG Ser Gly Val His Val Arg Arg Val Val Pro Ala Pro Val Pro Val Pro 2180	2185	2190	6931	

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	2180	2185	2190	
5	GCC TCC GCT CGC ACC GTC ACC ACG GCC CCC GCC ACC GCC GTC GGC GAG Ala Ser Ala Arg Thr Val Thr Thr Ala Pro Ala Thr Ala Val Gly Glu 2195 2200 2205 2210			6979
	GAC GCA CGG AAC GAC ACC TCG GAC GTG GTC GTG CCG GAC GAC CGG TGG Asp Ala Arg Asn Asp Thr Ser Asp Val Val Val Pro Asp Asp Arg Trp 2215 2220 2225			7027
10	TCC TCC GGC ACC GTA CTG ATC ACC GGG GGC ACC GGT GCC CTG GGT GCG Ser Ser Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Ala Leu Gly Ala 2230 2235 2240			7075
15	CAG GTC GCC CGC AGG CTC GCC CGG TCG GGC GCC GCG CGT CTG CTC CTG Gln Val Ala Arg Arg Leu Ala Arg Ser Gly Ala Ala Arg Leu Leu Leu 2245 2250 2255			7123
20	GTG GGC CGG CGC GGC GCG GCC GGC CCC GGA GTG GGC GAA CTC GTC GAG Val Gly Arg Arg Gly Ala Ala Gly Pro Gly Val Gly Glu Leu Val Glu 2260 2265 2270			7171
	GAG CTG ACG GCG CTC GGT TCC GAA GTG GCC GTC GAG GCC TGC GAC GTC Glu Leu Thr Ala Leu Gly Ser Glu Val Ala Val Glu Ala Cys Asp Val 2275 2280 2285 2290			7219
25	GCC GAC CGG GAC GCA CTG GCC GCG CTC CTC GCG GGC CTC CCC GAG GAG Ala Asp Arg Asp Ala Leu Ala Ala Leu Leu Ala Gly Leu Pro Glu Glu 2295 2300 2305			7267
30	CGG CCC CTC GTC GCC GTA CTG CAC GCG GCA GGT GTG CTC GAC GAC GGT Arg Pro Leu Val Ala Val Leu His Ala Ala Gly Val Leu Asp Asp Gly 2310 2315 2320			7315
	GTG CTC GAC TCG CTC ACC TCC GAC CGG GTG GAC GCC GTA CTG CGG GAC Val Leu Asp Ser Leu Thr Ser Asp Arg Val Asp Ala Val Leu Arg Asp 2325 2330 2335			7363
35	AAG GTC ACC GCC GCC CGT CAC CTG GAC GAG CTG ACC GCG GAC CTT CCG Lys Val Thr Ala Ala Arg His Leu Asp Glu Leu Thr Ala Asp Leu Pro 2340 2345 2350			7411
40	CTC GAC GCC TTC GTG CTC TTC TCC TCC ATC GTC GGC GTG TGG GGC AAC Leu Asp Ala Phe Val Leu Phe Ser Ser Ile Val Gly Val Trp Gly Asn 2355 2360 2365 2370			7459
45	GGA GGG CAG GCC GTC TAC GCG GCC GCC AAC GCC GCG CTC GAC GCC CTG Gly Gly Gln Ala Val Tyr Ala Ala Ala Asn Ala Ala Leu Asp Ala Leu 2375 2380 2385			7507
	GCG CAG CGG CGC CGG GCC AGG GGA GCC CGT GCC GCC TCG ATC GCC TGG Ala Gln Arg Arg Arg Ala Arg Gly Ala Arg Ala Ala Ser Ile Ala Trp 2390 2395 2400			7555
50	GGG CCG TGG GCC GGT GCC GGA ATG GCC TCC GGA ACG GCG GCG AAG TCC Gly Pro Trp Ala Gly Ala Gly Met Ala Ser Gly Thr Ala Ala Lys Ser 2405 2410 2415			7603
55	TTC GAA CGG GAC GGC GTC ACG GCC CTG GAC CCC GAG CGC GCG CTC GAC Phe Glu Arg Asp Gly Val Thr Ala Leu Asp Pro Glu Arg Ala Leu Asp			7651

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	2420	2425	2430	
5	GTC CTC GAC GAC GTG GTG GGC GCC GGC GGG ACC TCT GCC GCA GGG ACG Val Leu Asp Asp Val Val Gly Ala Gly Gly Thr Ser Ala Ala Gly Thr 2435 2440 2445 2450	7699		
10	CAC GCG GCC GGC GAG AGC TCC CTG CTC GTC GCC GAC GTG GAC TGG GAG His Ala Ala Gly Glu Ser Ser Leu Leu Val Ala Asp Val Asp Trp Glu 2455 2460 2465	7747		
15	ACC TTC GTC GGG CGT TCG GTC ACC CGC CGT ACC TGG TCG CTC TTC GAC Thr Phe Val Gly Arg Ser Val Thr Arg Arg Thr Trp Ser Leu Phe Asp 2470 2475 2480	7795		
20	GGC GTC TCC GCC GCC CGT TCG GCG CGT GCC GGC CAT GCC GCG GAC GAC Gly Val Ser Ala Ala Arg Ser Ala Arg Ala Gly His Ala Ala Asp Asp 2485 2490 2495	7843		
25	CGT GCC GCT CTC ACC CCA GGG ACG CGG CCG GGC GAC GGC GCA CCG GGC Arg Ala Ala Leu Thr Pro Gly Thr Arg Pro Gly Asp Gly Ala Pro Gly 2500 2505 2510	7891		
30	GGG AGC GGA CAG GAC GGG GGC GAG GGC CGG CCG TGG CTC TCC GTC GGC Gly Ser Gly Gln Asp Gly Gly Glu Gly Arg Pro Trp Leu Ser Val Gly 2515 2520 2525 2530	7939		
35	CCC TCG CCG GCG GAA CGC CGT CGT GCT CTG CTC ACG CTT GTG CGC TCG Pro Ser Pro Ala Glu Arg Arg Arg Ala Leu Leu Thr Leu Val Arg Ser 2535 2540 2545	7987		
40	GAG GCC GCC GGG ATC CTG CGC CAC GCC TCG GCC GAC GCG GTC GAC CCG Glu Ala Ala Gly Ile Leu Arg His Ala Ser Ala Asp Ala Val Asp Pro 2550 2555 2560	8035		
45	GAG CTG GCC TTC CGG TCC GCC GGG TTC GAC TCC CTC ACC GTT CTC GAA Glu Leu Ala Phe Arg Ser Ala Gly Phe Asp Ser Leu Thr Val Leu Glu 2565 2570 2575	8083		
50	CTG CGT AAC CGC CTG ACC GCT GCC ACC GGC CTG AAC CTG CCG AAC ACG Leu Arg Asn Arg Leu Thr Ala Ala Thr Gly Leu Asn Leu Pro Asn Thr 2580 2585 2590	8131		
55	CTG CTC TTC GAC CAC CCG ACC CCC CTC TCG CTC GCC TCC CAC CTG CAC Leu Leu Phe Asp His Pro Thr Pro Leu Ser Leu Ala Ser His Leu His 2595 2600 2605 2610	8179		
60	GAC GAA CTG TTC GGT CCC GAC AGC GAG GCG GAG CCG GCA GCG GCC GCC Asp Glu Leu Phe Gly Pro Asp Ser Glu Ala Glu Pro Ala Ala Ala Ala 2615 2620 2625	8227		
65	CCC ACG CCG GTC ATG GCC GAC GAG CGT GAG CCG ATC GCG ATC GTG GGC Pro Thr Pro Val Met Ala Asp Glu Arg Glu Pro Ile Ala Ile Val Gly 2630 2635 2640	8275		
70	ATG GCG TGC CGT TAC CCG GGC GGT GTG GCG TCG CCG GAC GAC CTG TGG Met Ala Cys Arg Tyr Pro Gly Gly Val Ala Ser Pro Asp Asp Leu Trp 2645 2650 2655	8323		
75	GAC CTG GTG GCC GGT GAC GGG CAC ACG CTC TCC CCG TTC CCG GCC GAC Asp Leu Val Ala Gly Asp Gly His Thr Leu Ser Pro Phe Pro Ala Asp 2660 2665 2670	8371		

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	2660	2665	2670	
5	CGT GGC TGG GAC GTC GAG GGG CTG TAC GAC CCG GAG CCG GGG GTG CCG Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Glu Pro Gly Val Pro 2675 2680 2685 2690	8419		
	GGC AAG AGC TAT GTA CGG GAA GGC GGG TTC CTG CGT TCC GCG GCC GAG Gly Lys Ser Tyr Val Arg Glu Gly Gly Phe Leu Arg Ser Ala Ala Glu 2695 2700 2705	8467		
10	TTC GAC GCG GAG TTC TTC GGG ATA TCG CCG CCG GAG GCC ACG GCC ATG Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala Thr Ala Met 2710 2715 2720	8515		
15	GAC CCG CAG CAG CGG TTG CTG CTG GAG ACG TCG TGG GAG GCG CTG GAG Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala Leu Glu 2725 2730 2735	8563		
20	CGG GCC GGC ATC GTT CCG GAC TCG CTG CCG GGC ACC CCG ACC GGT GTC Arg Ala Gly Ile Val Pro Asp Ser Leu Arg Gly Thr Arg Thr Gly Val 2740 2745 2750	8611		
	TTC AGC GGC ATC TCC CAG CAG GAC TAC GCG ACC CAG CTG GGG GAC GCC Phe Ser Gly Ile Ser Gln Gln Asp Tyr Ala Thr Gln Leu Gly Asp Ala 2755 2760 2765 2770	8659		
25	GCC GAC ACC TAC GGC GGG CAT GTG CTC ACG GGG ACC CTC GGC AGT GTG Ala Asp Thr Tyr Gly Gly His Val Leu Thr Gly Thr Leu Gly Ser Val 2775 2780 2785	8707		
30	ATC TCC GGT CCG GTT GCC TAT GCG TTG GGG TTG GAG GGG CCG GCG CTG Ile Ser Gly Arg Val Ala Tyr Ala Leu Gly Leu Glu Gly Pro Ala Leu 2790 2795 2800	8755		
35	ACG GTG GAC ACG GCG TGT TCG TCG TCG TTG GTG GCG TTG CAT CTG GCG Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu Ala 2805 2810 2815	8803		
	GTG CAG TCG TTG CCG CCG GGT GAG TGT GAT CTG GCG TTG GCC GGT GGG Val Gln Ser Leu Arg Arg Gly Glu Cys Asp Leu Ala Leu Ala Gly Gly 2820 2825 2830	8851		
40	GTG ACG GTG ATG GCG ACG CCG ACG GTG TTC GTG GAG TTC TCG CCG CAG Val Thr Val Met Ala Thr Pro Thr Val Phe Val Glu Phe Ser Arg Gln 2835 2840 2845 2850	8899		
45	CGG GGG CTG GCG GCG GAC GGG CCG TGC AAG GCG TTC GCG GAG GGT GCG Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ala Glu Gly Ala 2855 2860 2865	8947		
	GAC GGG ACG GCG TGG GCG GAG GGT GTG GGT GTG CTG CTG GTG GAG CCG Asp Gly Thr Ala Trp Ala Glu Gly Val Gly Val Leu Leu Val Glu Arg 2870 2875 2880	8995		
50	CTT TCC GAC GCG CCG CCG AAC GGT CAT CCG GTG CTG GCG GTG GTG CCG Leu Ser Asp Ala Arg Arg Asn Gly His Arg Val Leu Ala Val Val Arg 2885 2890 2895	9043		
55	GGC AGT GCG GTC AAT CAG GAC GGT GCG AGC AAT GGG CTG ACG GCG CCG Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro	9091		

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	2900	2905	2910	
5	AGT GGT CCG GCG CAG CAG CGG GTG ATC CGT GAG GCG CTG GCT GAT GCG Ser Gly Pro Ala Gln Gln Arg Val Ile Arg Glu Ala Leu Ala Asp Ala 2915 2920 2925 2930	9139		
10	GGG CTG GTG CCC GCC GAC GTG GAT GTG GTG GAG GCG CAC GGT ACG GCG Gly Leu Val Pro Ala Asp Val Asp Val Val Glu Ala His Gly Thr Gly 2935 2940 2945	9187		
15	ACG GCG CTG GGT GAT CCG ATC GAG GCG GGT GCG CTG CTG GCC ACG TAC Thr Ala Leu Gly Asp Pro Ile Glu Ala Gly Ala Leu Leu Ala Thr Tyr 2950 2955 2960	9235		
20	GGG CGG GAG CCG GTC GGC GAT CCG TTG TGG CTC GGG TCG TTG AAG TCG Gly Arg Glu Arg Val Gly Asp Pro Leu Trp Leu Gly Ser Leu Lys Ser 2965 2970 2975	9283		
25	AAC ATC GGG CAT GCG CAG GCG GCT GCG GGT GTG GGT GGT GTG ATC AAG Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Gly Gly Val Ile Lys 2980 2985 2990	9331		
30	GTG GTG CAG GGG ATG CCG CAT GGG TCG TTG CCG CGG ACG CTG CAT GTG Val Val Gln Gly Met Arg His Gly Ser Leu Pro Arg Thr Leu His Val 2995 3000 3005 3010	9379		
35	GAT GCG CCG TCG TCG AAG GTG GAG TGG GCT TCG GGT GCG GTG GAG CTG Asp Ala Pro Ser Ser Lys Val Glu Trp Ala Ser Gly Ala Val Glu Leu 3015 3020 3025	9427		
40	CTG ACC GAG ACC CCG TCG TGG CCG CGG CGG GTG GAG CGG GTG CGG CGG Leu Thr Glu Thr Arg Ser Trp Pro Arg Arg Val Glu Arg Val Arg Arg 3030 3035 3040	9475		
45	GCC GCG GTG TCG GCG TTC GGG GTG AGC GGG ACC AAC GCC CAT GTG GTC Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn Ala His Val Val 3045 3050 3055	9523		
50	CTG GAG GAA GCG CCG GCG GAG GCC GGG AGC GAG CAC GGG GAC GGC CCT Leu Glu Glu Ala Pro Ala Glu Ala Gly Ser Glu His Gly Asp Gly Pro 3060 3065 3070	9571		
55	GAA CCT GAG CCG CCC GAC GCG GTG ACG GGT CCG TTG TCG TGG GTG CTT Glu Pro Glu Arg Pro Asp Ala Val Thr Gly Pro Leu Ser Trp Val Leu 3075 3080 3085 3090	9619		
60	TCT GCG CGG TCG GAG GGG GCG TTG CGG GCG CAG GCG GTG CGG TTG CGT Ser Ala Arg Ser Glu Gly Ala Leu Arg Ala Gln Ala Val Arg Leu Arg 3095 3100 3105	9667		
65	GAG TGT GTG GAG CCG GTG GGT GCG GAT CCG CGG GAT GTG GCG GGG TCG Glu Cys Val Glu Arg Val Gly Ala Asp Pro Arg Asp Val Ala Gly Ser 3110 3115 3120	9715		
70	TTG GTG GTG TCG CGT GCG TCG TTC GGT GAG CGT GCG GTG GTG GTG GGC Leu Val Val Ser Arg Ala Ser Phe Gly Glu Arg Ala Val Val Val Gly 3125 3130 3135	9763		
75	CGG GGG CGT GAG GAG TTG CTG GCG GGT CTG GAT GTG GTG GCT GCC GGG Arg Gly Arg Glu Glu Leu Leu Ala Gly Leu Asp Val Val Ala Ala Gly 3140 3145 3150	9811		

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	3140	3145	3150	
5	GCT CCT GTG GGT GTG TCT TCG GGG GCC GGT GCT GTG GTG CGG GGG AGT Ala Pro Val Gly Val Ser Ser Gly Ala Gly Ala Val Val Arg Gly Ser 3155 3160 3165 3170			9859
10	GCG GTG CGG GGT CGT GGG GTG GGG GTG TTG TTC ACG GGT CAG GGT GCG Ala Val Arg Gly Arg Gly Val Gly Val Leu Phe Thr Gly Gln Gly Ala 3175 3180 3185			9907
15	CAG TGG GTT GGT ATG GGG CGT GGG TTG TAT GCG GGG GGT GGG GTG TTT Gln Trp Val Gly Met Gly Arg Gly Leu Tyr Ala Gly Gly Gly Val Phe 3190 3195 3200			9955
20	GCG GAG GTG CTG GAT GAG GTG TTG TCG GTG GTG GGG GAG GTG GAT GGT Ala Glu Val Leu Asp Glu Val Leu Ser Val Val Gly Glu Val Asp Gly 3205 3210 3215			10003
25	CGG TCG TTG CGG GAT GTG ATG TTC GCG GAT GCT GAC TCG GTT TTG GGT Arg Ser Leu Arg Asp Val Met Phe Ala Asp Ala Asp Ser Val Leu Gly 3220 3225 3230			10051
30	GGG TTG TTG GGT CGG ACG GAG TTT GCT CAG CCT GCG TTG TTT GCG TTG Gly Leu Leu Gly Arg Thr Glu Phe Ala Gln Pro Ala Leu Phe Ala Leu 3235 3240 3245 3250			10099
35	GAG GTG GCG TTG TTC CGG GCG TTG GAG GCT CGG GGT GTG GAG GTG TCG Glu Val Ala Leu Phe Arg Ala Leu Glu Ala Arg Gly Val Glu Val Ser 3255 3260 3265			10147
40	GTG GTG TTG GGT CAT TCG GTG GCG GAG GTG GCT GCT GCG TAT GTG GCG Val Val Leu Gly His Ser Val Gly Glu Val Ala Ala Ala Tyr Val Ala 3270 3275 3280			10195
45	GGG GTG TTG TCG TTG GGT GAT GCG GTG CGG TTG GTG GTG GCG CGG GGT Gly Val Leu Ser Leu Gly Asp Ala Val Arg Leu Val Val Ala Arg Gly 3285 3290 3295			10243
50	GGG TTG ATG GGT GGG TTG CCG GTG GGT GGG GGG ATG TGG TCG GTG GGG Gly Leu Met Gly Gly Leu Pro Val Gly Gly Gly Met Trp Ser Val Gly 3300 3305 3310			10291
55	GCG TCG GAG TCG GTG GTG CGG GGG GTT GTT GAG GGG TTG GGG GAG TCG Ala Ser Glu Ser Val Val Arg Gly Val Val Glu Gly Leu Gly Glu Trp 3315 3320 3325 3330			10339
60	GTG TCG GTT GCG GCG GTG AAT GGG CCG CGG TCG GTG GTG TTG TCG GGT Val Ser Val Ala Ala Val Asn Gly Pro Arg Ser Val Val Leu Ser Gly 3335 3340 3345			10387
65	GAT GTG GGT GTG CTG GAG TCG GTG GTT GTC ACG CTG ATG GGG GAT GGG Asp Val Gly Val Leu Glu Ser Val Val Val Thr Leu Met Gly Asp Gly 3350 3355 3360			10435
70	GTG GAG TGC CGG CGG TTG GAT GTG TCG CAT GGG TTT CAT TCG GTG TTG Val Glu Cys Arg Arg Leu Asp Val Ser His Gly Phe His Ser Val Leu 3365 3370 3375			10483
75	ATG GAG CCG GTG TTG GCG GAG TTC CCG GGG GTT GTG GAG TCG TTG GAG Met Glu Pro Val Leu Gly Glu Phe Arg Gly Val Val Glu Ser Leu Glu 3380 3385 3390			10531

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	3380	3385	3390	
5	TTC GGT CCG GTG CCG CCG GGT GTG GTG GTG GTG TCG GGT GTG TCG GGT Phe Gly Arg Val Arg Pro Gly Val Val Val Val Ser Gly Val Ser Gly 3395 3400 3405 3410	10579		
10	GGG GTG GTG GGT TCG GGG GAG TTG GGG GAT CCG GGG TAT TGG GTG CGT Gly Val Val Gly Ser Gly Glu Leu Gly Asp Pro Gly Tyr Trp Val Arg 3415 3420 3425	10627		
15	CAT GCG CCG GAG GCG GTG CGT TTC GCG GAT GGG GTG GGG GTG GTG CGT His Ala Arg Glu Ala Val Arg Phe Ala Asp Gly Val Gly Val Val Arg 3430 3435 3440	10675		
20	GGT CTG GGT GTG GGG ACG TTG GTG GAG GTG GGT CCG CAT GGG GTG CTG Gly Leu Gly Val Gly Thr Leu Val Glu Val Gly Pro His Gly Val Leu 3445 3450 3455	10723		
25	ACG GGG ATG GCG GGT CAG TGC CTG GAG GCC GGT GAT GAT GTG GTG GTG Thr Gly Met Ala Gly Gln Cys Leu Glu Ala Gly Asp Asp Val Val Val 3460 3465 3470	10771		
30	GTG CCG GCG ATG CCG CCG GGC CGT CCG GAG CCG GAG GTG TTC GAG GCG Val Pro Ala Met Arg Arg Gly Arg Pro Glu Arg Glu Val Phe Glu Ala 3475 3480 3485 3490	10819		
35	GCG CTG GCG ACG GTG TTC ACC CCG GAC GCC GGC CTC GAC GCC ACG ACA Ala Leu Ala Thr Val Phe Thr Arg Asp Ala Gly Leu Asp Ala Thr Thr 3495 3500 3505	10867		
40	CTC CAC ACC GGG AGC ACC GGC CGA CGC ATC GAC CTC CCC ACC TAC CCC Leu His Thr Gly Ser Thr Gly Arg Arg Ile Asp Leu Pro Thr Tyr Pro 3510 3515 3520	10915		
45	TTC CAA CAC AAC CGC TAC TGG GCA ACC GGC TCA GTG ACC GGT GCG ACC Phe Gln His Asn Arg Tyr Trp Ala Thr Gly Ser Val Thr Gly Ala Thr 3525 3530 3535	10963		
50	GGC ACC TCG GCA GCC GCG CGC TTC GGC CTG GAG TGG AAG GAC CAC CCC Gly Thr Ser Ala Ala Ala Arg Phe Gly Leu Glu Trp Lys Asp His Pro 3540 3545 3550	11011		
55	TTC CTC AGC GGC GCC ACG CCG ATA GCC GGC TCC GGC GCG CTG CTC CTC Phe Leu Ser Gly Ala Thr Pro Ile Ala Gly Ser Gly Ala Leu Leu Leu 3555 3560 3565 3570	11059		
60	ACC GGC AGG GTG GGG CTC GCT GCC CAC CCG TGG CTG GCC GAC CAC GCC Thr Gly Arg Val Gly Leu Ala Ala His Pro Trp Leu Ala Asp His Ala 3575 3580 3585	11107		
65	ATC TCC GGC ACG GTG CTG CTC CCC GGA ACG GCG ATC GCC GAC CTG CTG Ile Ser Gly Thr Val Leu Leu Pro Gly Thr Ala Ile Ala Asp Leu Leu 3590 3595 3600	11155		
70	CTG CCG GCG GTC GAG GAG GTC GGC GCC GGA GGG GTC GAG GAA CTG ACG Leu Arg Ala Val Glu Glu Val Gly Ala Gly Gly Val Glu Glu Leu Thr 3605 3610 3615	11203		
75	CTC CAT GAG CCC CTG CTC CTC CCC GAG CGA GGC GGC CTG CAC GTC CAG Leu His Glu Pro Leu Leu Leu Pro Glu Arg Gly Gly Leu His Val Gln	11251		

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	3620	3625	3630	
5	GTG CTG GTC GAG GCG GCC GAC GAG CAG GGA CGG CGT GCC GTG GCA GTC Val Leu Val Glu Ala Ala Asp Glu Gln Gly Arg Arg Ala Val Ala Val 3635 3640 3645 3650	11299		
10	GCC GCA CGC CCG GAG GGC CCT GGG CGG GAC GGT GAG GAA CAG GAG TGG Ala Ala Arg Pro Glu Gly Pro Gly Arg Asp Gly Glu Glu Gln Glu Trp 3655 3660 3665	11347		
15	ACC CGG CAC GCG GAA GGC GTG CTC ACC TCC ACC GAG ACG GCC GTT CCG Thr Arg His Ala Glu Gly Val Leu Thr Ser Thr Glu Thr Ala Val Pro 3670 3675 3680	11395		
20	GAC ATG GGC TGG GCC GCC GGG GCC TGG CCG CCG CCC GGT GCC GAG CCG Asp Met Gly Trp Ala Ala Gly Ala Trp Pro Pro Pro Gly Ala Glu Pro 3685 3690 3695	11443		
25	ATC GAC GTC GAG GAG CTG TAC GAC GCG TTC GCC GCG GAC GGC TAC GGC Ile Asp Val Glu Glu Leu Tyr Asp Ala Phe Ala Ala Asp Gly Tyr Gly 3700 3705 3710	11491		
30	TAC GGC CCG GCC TTC ACC GCA CTG TCC GGC GTG TGG CGT CTC GGC GAC Tyr Gly Pro Ala Phe Thr Ala Leu Ser Gly Val Trp Arg Leu Gly Asp 3715 3720 3725 3730	11539		
35	GAA CTC TTC GCC GAG GTG CCG CGG CCC GCG GGG GGC GCG GGC ACC ACC Glu Leu Phe Ala Glu Val Arg Arg Pro Ala Gly Gly Ala Gly Thr Thr 3735 3740 3745	11587		
40	GGT GAC GGT TTC GGC CTC CAC CCC GCA CTC TTC GAT GCG GCC CTC CAC Gly Asp Gly Phe Gly Val His Pro Ala Leu Phe Asp Ala Ala Leu His 3750 3755 3760	11635		
45	CCG TGG CGC GCC GGC GGG CTG CTG CCC GAC ACG GGC GGC ACC ACC TGG Pro Trp Arg Ala Gly Gly Leu Leu Pro Asp Thr Gly Gly Thr Thr Trp 3765 3770 3775	11683		
50	GCG CCG TTC TCC TGG CAG GGC ATC GCG CTC CAC ACC ACC GGA GCC GAG Ala Pro Phe Ser Trp Gln Gly Ile Ala Leu His Thr Thr Gly Ala Glu 3780 3785 3790	11731		
55	ACG CTC CGC GTC AGA CTG GCC CCT GCG GCC GGC GGC ACC GAG TCG GCC Thr Leu Arg Val Arg Leu Ala Pro Ala Ala Gly Gly Thr Glu Ser Ala 3795 3800 3805 3810	11779		
60	TTC TCC GTA CAG GCC GCC GAC CCG GCG GGC ACC CCG GTC CTC ACC CTC Phe Ser Val Gln Ala Ala Asp Pro Ala Gly Thr Pro Val Leu Thr Leu 3815 3820 3825	11827		
65	GAC GCA CTG CTG CTC CGC CCG GTG ACC CTG GGG AGG GCC GAC GCG CCG Asp Ala Leu Leu Leu Arg Pro Val Thr Leu Gly Arg Ala Asp Ala Pro 3830 3835 3840	11875		
70	CAA CCG CTG TAC CGC GTC GAC TGG CAG CCG GTC GGC CAG GGG ACC GAG Gln Pro Leu Tyr Arg Val Asp Trp Gln Pro Val Gly Gln Gly Thr Glu 3845 3850 3855	11923		
75	GCC TCC GGC GCC CAG GGC TGG ACG GTG CTC GGG CAG GCC GCG GCC GAG Ala Ser Gly Ala Gln Gly Trp Thr Val Leu Gly Gln Ala Ala Ala Glu 3860 3865 3870	11971		

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	3860	3865	3870	
5	ACG GTC GCG CAG CCC GCC GCC CAT GCG GAC CTC ACC GCC CTG CGT ACG Thr Val Ala Gln Pro Ala Ala His Ala Asp Leu Thr Ala Leu Arg Thr 3875 3880 3885 3890	12019		
10	GCT GTG GCC GCG GCG GGA ACA CCC GTG CCC CGG CTG GTG GTC GTG TCG Ala Val Ala Ala Ala Gly Thr Pro Val Pro Arg Leu Val Val Val Ser 3895 3900 3905	12067		
15	CCG GTG GAC ACC CGG CTG GAC GAG GGG CCG GTG CTG GCG GAC GCC GAG Pro Val Asp Thr Arg Leu Asp Glu Gly Pro Val Leu Ala Asp Ala Glu 3910 3915 3920	12115		
20	GCT CGG GCC CGT GCG GGT GAC GGC TGG GAC GAC GAT CCC CTA CGT GTC Ala Arg Ala Arg Ala Gly Asp Gly Trp Asp Asp Asp Pro Leu Arg Val 3925 3930 3935	12163		
25	GCC CTC GGG CGC GGC CTG ACC CTG GTC CGG GAG TGG GTC GAG GAC GAA Ala Leu Gly Arg Gly Leu Thr Leu Val Arg Glu Trp Val Glu Asp Glu 3940 3945 3950	12211		
30	CGG TTG GCG GAC TCC CGG CTC GTC GTC CTC ACC CGT GGC GCG GTG GCG Arg Leu Ala Asp Ser Arg Leu Val Val Leu Thr Arg Gly Ala Val Ala 3955 3960 3965 3970	12259		
35	GCC GGT CCC GGC GAT GTG CCG GAC CTG ACA GGT GCG GCC CTG TGG GGG Ala Gly Pro Gly Asp Val Pro Asp Leu Thr Gly Ala Ala Leu Trp Gly 3975 3980 3985	12307		
40	CTG CTC CGC TCC GCG CAG TCG GAG TAT CCG GAC CGC TTC ACC CTC ATC Leu Leu Arg Ser Ala Gln Ser Glu Tyr Pro Asp Arg Phe Thr Leu Ile 3990 3995 4000	12355		
45	GAC GTG GAC GAT TCC CCC GAG TCC CGT GCG GCT CTG CCC CGG GCT CTG Asp Val Asp Asp Ser Pro Glu Ser Arg Ala Ala Leu Pro Arg Ala Leu 4005 4010 4015	12403		
50	GGA TCG GCC GAG CGA CAA CTC GCC CTG CGG ACG GGC GAC GTG CTG GCG Gly Ser Ala Glu Arg Gln Leu Ala Leu Arg Thr Gly Asp Val Leu Ala 4020 4025 4030	12451		
55	CCG GCC CTG GTC CCG ATG GCC ACC CGG CCG GCG GAG ACC ACT CCA GCG Pro Ala Leu Val Pro Met Ala Thr Arg Pro Ala Glu Thr Thr Pro Ala 4035 4040 4045 4050	12499		
60	ACG GCG GTC GCC TCG GCG ACA ACA CAG ACA CAG GTC ACC GCG CCC GCT Thr Ala Val Ala Ser Ala Thr Thr Gln Thr Gln Val Thr Ala Pro Ala 4055 4060 4065	12547		
65	CCC GAC GAC CCG GCT GCG GAT GCC GTG TTC GAC CCG GCG GGC ACC GTA Pro Asp Asp Pro Ala Ala Asp Ala Val Phe Asp Pro Ala Gly Thr Val 4070 4075 4080	12595		
70	CTG ATC ACC GGC GGC ACC GGC GCC CTG GGA CCG CGT GTC GCC TCG CAC Leu Ile Thr Gly Gly Thr Gly Ala Leu Gly Arg Arg Val Ala Ser His 4085 4090 4095	12643		
75	CTC GCG CGC CGG TAC GGC GTA CGC CAC ATG CTT CTG GTC AGC AGG CGT Leu Ala Arg Arg Tyr Gly Val Arg His Met Leu Leu Val Ser Arg Arg 4100 4105 4110	12691		

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	4100	4105	4110	
5	GGA CCG GAC GCC CCC GAG GCC GGT CCC CTG GAA CGG GAA CTC GCC GGT Gly Pro Asp Ala Pro Glu Ala Gly Pro Leu Glu Arg Glu Leu Ala Gly 4115 4120 4125 4130			12739
	CTC GGA GTC ACC GCC ACC TTC CTG GCA TGC GAC CTC ACC GAC ATC GAG Leu Gly Val Thr Ala Thr Phe Leu Ala Cys Asp Leu Thr Asp Ile Glu 4135 4140 4145			12787
10	GCC GTA CGG AAG GCC GTC GCC GCG GTG CCG TCG GAC CAC CCG CTG ACC Ala Val Arg Lys Ala Val Ala Ala Val Pro Ser Asp His Pro Leu Thr 4150 4155 4160			12835
15	GGT GTG GTG CAC ACC GCC GGC GTG CTG GAC GAC GGC GCC CTG ACC GGC Gly Val Val His Thr Ala Gly Val Leu Asp Asp Gly Ala Leu Thr Gly 4165 4170 4175			12883
20	CTG ACC CGG CAA CGC CTC GAC ACC GTG CTG CGG CCC AAG GCC GAC GCC Leu Thr Arg Gln Arg Leu Asp Thr Val Leu Arg Pro Lys Ala Asp Ala 4180 4185 4190			12931
	GTG CGG AAC CTC CAC GAG GCG ACC CTC GAC CGG CCG CTG CGC GCG TTC Val Arg Asn Leu His Glu Ala Thr Leu Asp Arg Pro Leu Arg Ala Phe 4195 4200 4205 4210			12979
25	GTC CTG TTC TCC GCC GCC GCC GGA CTC CTG GGC CGC CCC GGG CAG GCC Val Leu Phe Ser Ala Ala Ala Gly Leu Leu Gly Arg Pro Gly Gln Ala 4215 4220 4225			13027
30	TCC TAC GCC GCC GCC AAC GCG GTC CTC GAC GCG CTC GCG GGA GCC CGC Ser Tyr Ala Ala Ala Asn Ala Val Leu Asp Ala Leu Ala Gly Ala Arg 4230 4235 4240			13075
35	CGC GCG GCC GGA CTG CCC GCA GTG TCC CTG GCG TGG GGC CTG TGG GAC Arg Ala Ala Gly Leu Pro Ala Val Ser Leu Ala Trp Gly Leu Trp Asp 4245 4250 4255			13123
	GAG CAG ACG GGC ATG GCA GGA GGC CTC GAC GAG ATG GCC CTG CGC GTG Glu Gln Thr Gly Met Ala Gly Gly Leu Asp Glu Met Ala Leu Arg Val 4260 4265 4270			13171
40	CTG CGC CGG GAC GGC ATC GCC GCG ATG CCT CCG GAG CAG GGG CTC GAA Leu Arg Arg Asp Gly Ile Ala Ala Met Pro Pro Glu Gln Gly Leu Glu 4275 4280 4285 4290			13219
45	CTG CTC GAC CTG GCC CTG ACC GGA CAC CGG GAC GGA CCC GCC GTC CTC Leu Leu Asp Leu Ala Leu Thr Gly His Arg Asp Gly Pro Ala Val Leu 4295 4300 4305			13267
	GTC CCC CTC CTC CTC GAC GGC GCG GCC CTG CGC CGC ACG GCG AAG GAG Val Pro Leu Leu Leu Asp Gly Ala Ala Leu Arg Arg Thr Ala Lys Glu 4310 4315 4320			13315
50	CGC GGC GCG GCC ACG ATG TCC CCC TTG CTG CGC GCC CTG CTG CCC GCC Arg Gly Ala Ala Thr Met Ser Pro Leu Leu Arg Ala Leu Leu Pro Ala 4325 4330 4335			13363
55	GCC CTG CGC CGC AGC GGT GGA GCC GGC GCC CCC GCG GCG GCC GAC CGG Ala Leu Arg Arg Ser Gly Gly Ala Gly Ala Pro Ala Ala Ala Asp Arg			13411

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	4340	4345	4350	
5	CAC GGC AAG GAG GCG GAC CCC GGT GCG GGA CGC CTC GCA GGG ATG GTG His Gly Lys Glu Ala Asp Pro Gly Ala Gly Arg Leu Ala Gly Met Val 4355	4360	4365	13459 4370
10	GCA CTC GAA GCG GCG GAG CGT TCC GCG GCC GTC CTT GAG CTG GTC ACC Ala Leu Glu Ala Ala Glu Arg Ser Ala Ala Val Leu Glu Leu Val Thr 4375	4380	4385	13507
15	GAA CAG GTC GCC GAG GTC CTC GGC TAC GCG TCG GCC GCG GAG ATC GAG Glu Gln Val Ala Glu Val Leu Gly Tyr Ala Ser Ala Ala Glu Ile Glu 4390	4395	4400	13555
20	CCC GAA CGA CCC TTC CGG GAG ATC GGC GTC GAC TCC CTG GCG GCG GTG Pro Glu Arg Pro Phe Arg Glu Ile Gly Val Asp Ser Leu Ala Ala Val 4405	4410	4415	13603
25	GAG CTG CGC AAC CGG CTC AGC CGT CTG GTC GGC CTG CGG TTG CCG ACC Glu Leu Arg Asn Arg Leu Ser Arg Leu Val Gly Leu Arg Leu Pro Thr 4420	4425	4430	13651
30	ACG CTG TCC TTC GAC CAC CCC ACG CCG AAG GAC ATG GCG CAG CAC ATC Thr Leu Ser Phe Asp His Pro Thr Pro Lys Asp Met Ala Gln His Ile 4435	4440	4445	13699 4450
35	GAC GGG CAG CTC CCC CGC CCG GCC GGA GCC TCG CCC GCG GAC GCA GCG Asp Gly Gln Leu Pro Arg Pro Ala Gly Ala Ser Pro Ala Asp Ala Ala 4455	4460	4465	13747
40	CTG GAA GGG ATC GGC GAC CTC GCG CGG GCG GTC GCC CTG CTG GGC ACG Leu Glu Gly Ile Gly Asp Leu Ala Arg Ala Val Ala Leu Leu Gly Thr 4470	4475	4480	13795
45	GGC GAC GCC CGC CGG GCC GAG GTA CGA GAG CAG CTC GTC GGA CTG CTG Gly Asp Ala Arg Arg Ala Glu Val Arg Glu Gln Leu Val Gly Leu Leu 4485	4490	4495	13843
50	GCC GCG CTC GAC CCA CCT GGG CGG ACG GGC ACC GCC GCA CCC GGC GTC Ala Ala Leu Asp Pro Pro Gly Arg Thr Gly Thr Ala Ala Pro Gly Val 4500	4505	4510	13891
55	CCC TCC GGT GCC GAT GGC GCG GAA CCG ACC GTG ACG GAC CGG CTC GAC Pro Ser Gly Ala Asp Gly Ala Glu Pro Thr Val Thr Asp Arg Leu Asp 4515	4520	4525	13939 4530
60	GAG GCG ACC GAC GAC GAG ATC TTC GCC TTC CTG GAC GAG CAG CTG TGA Glu Ala Thr Asp Asp Glu Ile Phe Ala Phe Leu Asp Glu Gln Leu *	4535	4540	13987 4545

(2) INFORMATION FOR SEQ ID NO:14:

- 50 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 4546 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: unknown
- 55 (ii) MOLECULE TYPE: protein

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

5	Met	Ser	Gly	Glu	Leu	Ala	Ile	Ser	Arg	Ser	Asp	Asp	Arg	Ser	Asp	Ala	1	5	10	15
	Val	Ala	Val	Val	Gly	Met	Ala	Cys	Arg	Phe	Pro	Gly	Ala	Pro	Gly	Ile	20	25	30	
10	Ala	Glu	Phe	Trp	Glu	Leu	Leu	Arg	Ser	Gly	Arg	Gly	Met	Pro	Thr	Arg	35	40	45	
	Gln	Asp	Asp	Gly	Thr	Trp	Arg	Ala	Ala	Leu	Glu	Asp	His	Ala	Gly	Phe	50	55	60	
15	Asp	Ala	Gly	Phe	Phe	Gly	Met	Asn	Ala	Arg	Gln	Ala	Ala	Ala	Thr	Asp	65	70	75	80
	Pro	Gln	His	Arg	Leu	Met	Leu	Glu	Leu	Gly	Trp	Glu	Ala	Leu	Glu	Asp	85	90	95	
20	Ala	Gly	Ile	Val	Pro	Gly	Asp	Leu	Thr	Gly	Thr	Asp	Thr	Gly	Val	Phe	100	105	110	
	Ala	Gly	Val	Ala	Ser	Asp	Asp	Tyr	Ala	Val	Leu	Thr	Arg	Arg	Ser	Ala	115	120	125	
25	Val	Ser	Ala	Gly	Gly	Tyr	Thr	Ala	Thr	Gly	Leu	His	Arg	Ala	Leu	Ala	130	135	140	
	Ala	Asn	Arg	Leu	Ser	His	Phe	Leu	Gly	Leu	Arg	Gly	Pro	Ser	Leu	Val	145	150	155	160
30	Val	Asp	Ser	Ala	Gln	Ser	Ala	Ser	Leu	Val	Ala	Val	Gln	Leu	Ala	Cys	165	170	175	
	Glu	Ser	Leu	Arg	Arg	Gly	Glu	Thr	Ser	Leu	Ala	Val	Ala	Gly	Gly	Val	180	185	190	
35	Asn	Leu	Ile	Leu	Thr	Glu	Glu	Ser	Thr	Thr	Val	Met	Glu	Arg	Met	Gly	195	200	205	
40	Ala	Leu	Ser	Pro	Asp	Gly	Arg	Cys	His	Thr	Phe	Asp	Ala	Arg	Ala	Asn	210	215	220	
	Gly	Tyr	Val	Arg	Gly	Glu	Gly	Gly	Gly	Ala	Val	Val	Leu	Lys	Pro	Leu	225	230	235	240
45	Asp	Ala	Ala	Leu	Ala	Asp	Gly	Asp	Arg	Val	Tyr	Cys	Val	Ile	Lys	Gly	245	250	255	
	Gly	Ala	Val	Asn	Asn	Asp	Gly	Gly	Gly	Ala	Ser	Leu	Thr	Thr	Pro	Asp	260	265	270	
50	Arg	Glu	Ala	Gln	Glu	Ala	Val	Leu	Arg	Gln	Ala	Tyr	Arg	Arg	Ala	Gly	275	280	285	
	Val	Ser	Thr	Gly	Ala	Val	Arg	Tyr	Val	Glu	Leu	His	Gly	Thr	Gly	Thr	290	295	300	
55	Arg	Ala	Gly	Asp	Pro	Val	Glu	Ala	Ala	Ala	Leu	Gly	Ala	Val	Leu	Gly				

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	305		310		315		320
	Ala Gly Ala Asp Ser Gly Arg Ser Thr Pro Leu Ala Val Gly Ser Val						
		325			330		335
5	Lys Thr Asn Val Gly His Leu Glu Gly Ala Ala Gly Ile Val Gly Leu						
		340			345		350
	Ile Lys Ala Thr Leu Cys Val Arg Lys Gly Glu Leu Val Pro Ser Leu						
10		355			360		365
	Asn Phe Ser Thr Pro Asn Pro Asp Ile Pro Leu Asp Asp Leu Arg Leu						
		370			375		380
	Arg Val Gln Thr Glu Arg Gln Glu Trp Asn Glu Glu Asp Asp Arg Pro						
15		385			390		395
	Arg Val Ala Gly Val Ser Ser Phe Gly Met Gly Gly Thr Asn Val His						
		405			410		415
	Leu Val Ile Ala Glu Ala Pro Ala Ala Ala Gly Ser Ser Gly Ala Gly						
20		420			425		430
	Gly Ser Gly Ala Gly Ser Gly Ala Gly Ile Ser Ala Val Ser Gly Val						
		435			440		445
	Val Pro Val Val Val Ser Gly Arg Ser Arg Val Val Val Arg Glu Ala						
25		450			455		460
	Ala Gly Arg Leu Ala Glu Val Val Glu Ala Gly Gly Val Gly Leu Ala						
		465			470		475
	Asp Val Ala Val Thr Met Ala Asp Arg Ser Arg Phe Gly Tyr Arg Ala						
30		485			490		495
	Val Val Leu Ala Arg Gly Glu Ala Glu Leu Ala Gly Arg Leu Arg Ala						
35		500			505		510
	Leu Ala Gly Gly Asp Pro Asp Ala Gly Val Val Thr Gly Ala Val Leu						
		515			520		525
	Asp Gly Gly Val Val Val Gly Ala Ala Pro Gly Gly Ala Gly Ala Ala						
40		530			535		540
	Gly Gly Ala Gly Ala Ala Gly Gly Ala Gly Gly Gly Gly Val Val Leu						
		545			550		555
	Val Phe Pro Gly Gln Gly Thr Gln Trp Val Gly Met Gly Ala Gly Leu						
45		565			570		575
	Leu Gly Ser Ser Glu Val Phe Ala Ala Ser Met Arg Glu Cys Ala Arg						
		580			585		590
	Ala Leu Ser Val His Val Gly Trp Asp Leu Leu Glu Val Val Ser Gly						
50		595			600		605
	Gly Ala Gly Leu Glu Arg Val Asp Val Val Gln Pro Val Thr Trp Ala						
		610			615		620
55	Val Met Val Ser Leu Ala Arg Tyr Trp Gln Ala Met Gly Val Asp Val						

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	625		630		635		640
	Ala Ala Val Val Gly His Ser Gln Gly Glu Ile Ala Ala Ala Thr Val						
		645			650		655
5	Ala Gly Ala Leu Ser Leu Glu Asp Ala Ala Ala Val Val Ala Leu Arg						
		660			665		670
	Ala Gly Leu Ile Gly Arg Tyr Leu Ala Gly Arg Gly Ala Met Ala Ala						
		675			680		685
10	Val Pro Leu Pro Ala Gly Glu Val Glu Ala Gly Leu Ala Lys Trp Pro						
		690			695		700
	Gly Val Glu Val Ala Ala Val Asn Gly Pro Ala Ser Thr Val Val Ser						
		705			710		715
15	Gly Asp Arg Arg Ala Val Ala Gly Tyr Val Ala Val Cys Gln Ala Glu						
		725			730		735
	Gly Val Gln Ala Arg Leu Ile Pro Val Asp Tyr Ala Ser His Ser Arg						
		740			745		750
20	His Val Glu Asp Leu Lys Gly Glu Leu Glu Arg Val Leu Ser Gly Ile						
		755			760		765
	Arg Pro Arg Ser Pro Arg Val Pro Val Cys Ser Thr Val Ala Gly Glu						
		770			775		780
25	Gln Pro Gly Glu Pro Val Phe Asp Ala Gly Tyr Trp Phe Arg Asn Leu						
		785			790		795
	Arg Asn Arg Val Glu Phe Ser Ala Val Val Gly Gly Leu Leu Glu Glu						
		805			810		815
30	Gly His Arg Arg Phe Ile Glu Val Ser Ala His Pro Val Leu Val His						
		820			825		830
35	Ala Ile Glu Gln Thr Ala Glu Ala Ala Asp Arg Ser Val His Ala Thr						
		835			840		845
	Gly Thr Leu Arg Arg Gln Asp Asp Ser Pro His Arg Leu Leu Thr Ser						
		850			855		860
40	Thr Ala Glu Ala Trp Ala His Gly Ala Thr Leu Thr Trp Asp Pro Ala						
		865			870		875
	Leu Pro Pro Gly His Leu Thr Thr Leu Pro Thr Tyr Pro Phe Asn His						
		885			890		895
45	His His Tyr Trp Leu Asp Thr Ile Asp Gly Gly Gly Gly Asp Asp Ala						
		900			905		910
	Thr Gln Glu Lys Glu Ser Gly Pro Leu Thr Arg Glu Leu Arg Gly Leu						
		915			920		925
50	Pro Ser Ser Gln Lys Gln Leu Gly Phe Leu Leu Asp Leu Val Cys Arg						
		930			935		940
55	His Thr Ala Val Val Leu Gly Leu Asp Thr Ala Ala Glu Val Asp Pro						

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	945		950		955		960
	Asp Leu Ser Phe Lys Lys Gln Gly Ile Gln Ser Met Thr Gly Val Glu						
		965			970		975
5	Leu Arg Asn Arg Leu Leu Thr Glu Thr Gly Leu Ala Leu Pro Thr Thr						
		980		985		990	
	Leu Val Tyr Asp Arg Pro Thr Pro Arg Ala Leu Ala Gln Phe Leu His						
10		995		1000		1005	
	Thr Glu Leu Leu Asp Gly Ser Pro Ser Gly Ser Val Leu Ala Pro Ala						
		1010		1015		1020	
	Gln Lys Ser Phe Glu Ala Gly Gly Pro Gly Val Leu Ser Ser Ala Ala						
15		1025		1030		1035	1040
	Val Gly Val Ser Asp Ala Arg Gly Gly Ser Arg Asp Asp Asp Asp Pro						
		1045		1050		1055	
20	Ile Ala Ile Val Gly Val Gly Cys Arg Leu Pro Gly Gly Val Asp Ser						
		1060		1065		1070	
	Arg Ala Ala Leu Trp Glu Leu Leu Glu Ser Gly Ala Asp Ala Ile Ser						
		1075		1080		1085	
25	Ser Phe Pro Thr Asp Arg Gly Trp Asp Leu Asp Gly Leu Tyr Asp Pro						
		1090		1095		1100	
	Glu Pro Gly Thr Pro Gly Lys Thr Tyr Val Arg Glu Gly Gly Phe Leu						
		1105		1110		1115	1120
30	His Ser Ala Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg						
		1125		1130		1135	
	Glu Ala Thr Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Ala Ser						
		1140		1145		1150	
35	Trp Glu Ala Leu Glu Asp Ala Gly Val Leu Pro Glu Ser Leu Arg Gly						
		1155		1160		1165	
	Gly Asp Ala Gly Val Phe Val Gly Ala Thr Ala Pro Glu Tyr Gly Pro						
40		1170		1175		1180	
	Arg Leu His Glu Gly Ala Asp Gly Tyr Glu Gly Tyr Leu Leu Thr Gly						
		1185		1190		1195	1200
	Thr Thr Ala Ser Val Ala Ser Gly Arg Ile Ala Tyr Thr Leu Gly Thr						
45		1205		1210		1215	
	Gly Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val						
		1220		1225		1230	
50	Ala Leu His Leu Ala Val Gln Ala Leu Arg Arg Gly Glu Cys Gly Leu						
		1235		1240		1245	
	Ala Leu Ala Gly Gly Ala Thr Val Met Ser Gly Pro Gly Met Phe Val						
		1250		1255		1260	
55	Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Met Pro						

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	1265	1270	1275	1280
	Phe Ser Ala Asp Ala Asp Gly Thr Ala Trp Ser Glu Gly Val Ala Val			
		1285	1290	1295
5	Leu Ala Leu Glu Arg Leu Ser Asp Ala Arg Arg Ala Gly His Arg Val			
		1300	1305	1310
	Leu Gly Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn			
10		1315	1320	1325
	Gly Leu Thr Ala Pro Asn Arg Ser Ala Gln Glu Gly Val Ile Arg Ala			
		1330	1335	1340
	Ala Leu Ala Asp Ala Gly Leu Ala Pro Gly Asp Val Asp Ala Val Glu			
15		1345	1350	1355
	Ala His Gly Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Ala Ser Ala			
		1365	1370	1375
	Leu Leu Ala Thr Tyr Gly Arg Glu Arg Val Gly Asp Pro Leu Trp Leu			
20		1380	1385	1390
	Gly Ser Leu Lys Ser Asn Val Gly His Thr Gln Ala Ala Ala Gly Ala			
		1395	1400	1405
	Ala Gly Val Val Lys Met Leu Leu Ala Leu Glu His Gly Thr Leu Pro			
25		1410	1415	1420
	Arg Thr Leu His Ala Asp Arg Pro Ser Thr His Val Asp Trp Ser Ser			
		1425	1430	1435
30				1440
	Gly Thr Val Ala Leu Leu Ala Glu Ala Arg Arg Trp Pro Arg Arg Ser			
		1445	1450	1455
	Asp Arg Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr			
35		1460	1465	1470
	Asn Ala His Leu Ile Ile Glu Glu Ala Pro Glu Trp Val Glu Asp Ile			
		1475	1480	1485
	Asp Gly Val Ala Ala Pro Asp Arg Gly Thr Ala Asp Ala Ala Ala Pro			
40		1490	1495	1500
	Ser Pro Leu Leu Leu Ser Ala Arg Ser Glu Gly Ala Leu Arg Ala Gln			
		1505	1510	1515
				1520
	Ala Val Arg Leu Gly Glu Tyr Val Glu Arg Val Gly Ala Asp Pro Arg			
45		1525	1530	1535
	Asp Val Ala Tyr Ser Leu Ala Ser Thr Arg Thr Leu Phe Glu His Arg			
		1540	1545	1550
	Ala Val Val Pro Cys Gly Gly Arg Gly Glu Leu Val Ala Ala Leu Gly			
50		1555	1560	1565
	Gly Phe Ala Ala Gly Arg Val Ser Gly Gly Val Arg Ser Gly Arg Ala			
		1570	1575	1580
55	Val Pro Gly Gly Val Gly Val Leu Phe Thr Gly Gln Gly Ala Gln Trp			

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	1585	1590	1595	1600
5	Val Gly Met Gly Arg Gly Leu Tyr Ala Gly Gly Gly Val Phe Ala Glu 1605 1610 1615			
	Val Leu Asp Glu Val Leu Ser Met Val Gly Glu Val Asp Gly Arg Ser 1620 1625 1630			
10	Leu Arg Asp Val Met Phe Gly Asp Val Asp Val Asp Ala Gly Ala Gly 1635 1640 1645			
	Ala Asp Ala Gly Ala Gly Ala Gly Ala Gly Val Gly Ser Gly Ser Gly 1650 1655 1660			
15	Ser Val Gly Gly Leu Leu Gly Arg Thr Glu Phe Ala Gln Pro Ala Leu 1665 1670 1675 1680			
	Phe Ala Leu Glu Val Ala Leu Phe Arg Ala Leu Glu Ala Arg Gly Val 1685 1690 1695			
20	Glu Val Ser Val Val Leu Gly His Ser Val Gly Glu Val Ala Ala Ala 1700 1705 1710			
	Tyr Val Ala Gly Val Leu Ser Leu Gly Asp Ala Val Arg Leu Val Val 1715 1720 1725			
25	Ala Arg Gly Gly Leu Met Gly Gly Leu Pro Val Gly Gly Gly Met Trp 1730 1735 1740			
	Ser Val Gly Ala Ser Glu Ser Val Val Arg Gly Val Val Glu Gly Leu 1745 1750 1755 1760			
30	Gly Glu Trp Val Ser Val Ala Ala Val Asn Gly Pro Arg Ser Val Val 1765 1770 1775			
	Leu Ser Gly Asp Val Gly Val Leu Glu Ser Val Val Ala Ser Leu Met 1780 1785 1790			
35	Gly Asp Gly Val Glu Cys Arg Arg Leu Asp Val Ser His Gly Phe His 1795 1800 1805			
	Ser Val Leu Met Glu Pro Val Leu Gly Glu Phe Arg Gly Val Val Glu 1810 1815 1820			
40	Ser Leu Glu Phe Gly Arg Val Arg Pro Gly Val Val Val Val Ser Gly 1825 1830 1835 1840			
45	Val Ser Gly Gly Val Val Gly Ser Gly Glu Leu Gly Asp Pro Gly Tyr 1845 1850 1855			
	Trp Val Arg His Ala Arg Glu Ala Val Arg Phe Ala Asp Gly Val Gly 1860 1865 1870			
50	Val Val Arg Gly Leu Gly Val Gly Thr Leu Val Glu Val Gly Pro His 1875 1880 1885			
	Gly Val Leu Thr Gly Met Ala Gly Glu Cys Leu Gly Ala Gly Asp Asp 1890 1895 1900			
55	Val Val Val Val Pro Ala Met Arg Arg Gly Arg Ala Glu Arg Glu Val			

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	1905	1910	1915	1920
	Phe Glu Ala	Ala Leu Ala Thr Val	Phe Thr Arg Asp Ala Gly	Leu Asp
5		1925	1930	1935
	Ala Thr Ala	Leu His Thr Gly Ser Thr Gly	Arg Arg Ile Asp	Leu Pro
		1940	1945	1950
10	Thr Tyr Pro	Phe Gln Arg Asp Arg Tyr Trp	Leu Asp Pro Val	Arg Thr
		1955	1960	1965
	Ala Val Thr	Gly Val Glu Pro Ala Gly Ser Pro	Ala Asp Ala Arg	Ala
		1970	1975	1980
15	Thr Glu Arg	Gly Arg Ser Thr Thr Ala Gly	Ile Arg Tyr Arg	Val Ala
	1985	1990	1995	2000
	Trp Gln Pro	Ala Val Val Asp Arg Gly Asn Pro	Gly Pro Ala Gly	His
		2005	2010	2015
20	Val Leu Leu	Leu Ala Pro Asp Glu Asp Thr Ala Asp	Ser Gly Leu Ala	
		2020	2025	2030
	Pro Ala Ile	Ala Arg Glu Leu Ala Val Arg Gly	Ala Glu Val His	Thr
		2035	2040	2045
25	Val Ala Val	Pro Val Gly Thr Gly Arg Glu Ala Ala	Gly Asp Leu Leu	
		2050	2055	2060
	Arg Ala Ala	Gly Asp Gly Ala Ala Arg Ser Thr Arg	Val Leu Trp Leu	
	2065	2070	2075	2080
30	Ala Pro Ala	Glu Pro Asp Ala Ala Asp Ala Val Ala	Leu Val Gln Ala	
		2085	2090	2095
	Leu Gly Glu	Ala Val Pro Glu Ala Pro Leu Trp	Ile Thr Thr Arg	Glu
		2100	2105	2110
35	Ala Ala Ala	Val Arg Pro Asp Glu Thr Pro Ser Val	Gly Gly Ala Gln	
		2115	2120	2125
	Leu Trp Gly	Leu Gly Gln Val Ala Ala Leu Glu	Leu Gly Arg Arg	Trp
40		2130	2135	2140
	Gly Gly Leu	Ala Asp Leu Pro Gly Ser Ala Ser Pro	Ala Val Leu Arg	
	2145	2150	2155	2160
45	Thr Phe Val	Gly Ala Leu Leu Ala Gly Gly Glu Asn	Gln Phe Ala Val	
		2165	2170	2175
	Arg Pro Ser	Gly Val His Val Arg Arg Val Val Pro	Ala Pro Val Pro	
		2180	2185	2190
50	Val Pro Ala	Ser Ala Arg Thr Val Thr Thr Ala Pro	Ala Thr Ala Val	
		2195	2200	2205
	Gly Glu Asp	Ala Arg Asn Asp Thr Ser Asp Val Val	Val Pro Asp Asp	
	2210	2215	2220	
55	Arg Trp Ser	Ser Gly Thr Val Leu Ile Thr Gly Gly	Thr Gly Ala Leu	

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	2225	2230	2235	2240
	Gly Ala Gln Val	Ala Arg Arg Leu	Ala Arg Ser Gly	Ala Ala Arg Leu
		2245	2250	2255
5	Leu Leu Val Gly	Arg Arg Gly	Ala Ala Gly	Pro Gly Val Gly
		2260	2265	2270
	Val Glu Glu Leu	Thr Ala Leu	Gly Ser Glu	Val Ala Val Glu
10		2275	2280	2285
	Asp Val Ala Asp	Arg Asp Ala	Leu Ala Ala	Leu Leu Ala
		2290	2295	2300
	Glu Glu Arg Pro	Leu Val Ala	Val Leu His	Ala Ala Gly
15		2305	2310	2315
	Val Leu Asp	Ser Leu Thr	Ser Asp Arg	Val Asp Ala
		2325	2330	2335
	Arg Asp Lys Val	Thr Ala Ala	Arg His Leu	Asp Glu Leu
20		2340	2345	2350
	Leu Pro Leu Asp	Ala Phe Val	Leu Phe Ser	Ser Ile Val Gly
		2355	2360	2365
	Gly Asn Gly Gly	Gln Ala Val	Tyr Ala Ala	Ala Asn Ala
25		2370	2375	2380
	Ala Leu Ala Gln	Arg Arg Arg	Ala Arg Gly	Ala Arg Ala
		2385	2390	2395
30				2400
	Ala Trp Gly Pro	Trp Ala Gly	Ala Gly Met	Ala Ser Gly
		2405	2410	2415
	Lys Ser Phe Glu	Arg Asp Gly	Val Thr Ala	Leu Asp Pro
35		2420	2425	2430
	Leu Asp Val Leu	Asp Asp Val	Val Gly Ala	Gly Gly Thr
		2435	2440	2445
	Gly Thr His Ala	Ala Gly Glu	Ser Ser Leu	Leu Val Ala
40		2450	2455	2460
	Trp Glu Thr Phe	Val Gly Arg	Ser Val Thr	Arg Arg Thr
		2465	2470	2475
				2480
	Phe Asp Gly Val	Ser Ala Ala	Arg Ser Ala	Arg Ala Gly
45		2485	2490	2495
	Asp Asp Arg Ala	Ala Leu Thr	Pro Gly Thr	Arg Pro Gly
		2500	2505	2510
	Pro Gly Gly Ser	Gly Gln Asp	Gly Gly Glu	Gly Arg Pro
50		2515	2520	2525
	Val Gly Pro Ser	Pro Ala Glu	Arg Arg Arg	Ala Leu Leu
		2530	2535	2540
55				
	Arg Ser Glu Ala	Ala Gly Ile	Leu Arg His	Ala Ser Ala
				Asp Ala Val

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	2545		2550		2555		2560
	Asp Pro Glu Leu Ala Phe Arg Ser Ala Gly Phe Asp Ser Leu Thr Val						
		2565			2570		2575
5	Leu Glu Leu Arg Asn Arg Leu Thr Ala Ala Thr Gly Leu Asn Leu Pro						
		2580			2585		2590
	Asn Thr Leu Leu Phe Asp His Pro Thr Pro Leu Ser Leu Ala Ser His						
10		2595			2600		2605
	Leu His Asp Glu Leu Phe Gly Pro Asp Ser Glu Ala Glu Pro Ala Ala						
		2610			2615		2620
	Ala Ala Pro Thr Pro Val Met Ala Asp Glu Arg Glu Pro Ile Ala Ile						
15		2625			2630		2635
					2635		2640
	Val Gly Met Ala Cys Arg Tyr Pro Gly Gly Val Ala Ser Pro Asp Asp						
		2645			2650		2655
20	Leu Trp Asp Leu Val Ala Gly Asp Gly His Thr Leu Ser Pro Phe Pro						
		2660			2665		2670
	Ala Asp Arg Gly Trp Asp Val Glu Gly Leu Tyr Asp Pro Glu Pro Gly						
		2675			2680		2685
25	Val Pro Gly Lys Ser Tyr Val Arg Glu Gly Gly Phe Leu Arg Ser Ala						
		2690			2695		2700
	Ala Glu Phe Asp Ala Glu Phe Phe Gly Ile Ser Pro Arg Glu Ala Thr						
		2705			2710		2715
30					2715		2720
	Ala Met Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Ser Trp Glu Ala						
		2725			2730		2735
	Leu Glu Arg Ala Gly Ile Val Pro Asp Ser Leu Arg Gly Thr Arg Thr						
35		2740			2745		2750
	Gly Val Phe Ser Gly Ile Ser Gln Gln Asp Tyr Ala Thr Gln Leu Gly						
		2755			2760		2765
	Asp Ala Ala Asp Thr Tyr Gly Gly His Val Leu Thr Gly Thr Leu Gly						
40		2770			2775		2780
	Ser Val Ile Ser Gly Arg Val Ala Tyr Ala Leu Gly Leu Glu Gly Pro						
		2785			2790		2795
					2795		2800
45	Ala Leu Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Leu His						
		2805			2810		2815
	Leu Ala Val Gln Ser Leu Arg Arg Gly Glu Cys Asp Leu Ala Leu Ala						
		2820			2825		2830
50	Gly Gly Val Thr Val Met Ala Thr Pro Thr Val Phe Val Glu Phe Ser						
		2835			2840		2845
	Arg Gln Arg Gly Leu Ala Ala Asp Gly Arg Cys Lys Ala Phe Ala Glu						
		2850			2855		2860
55	Gly Ala Asp Gly Thr Ala Trp Ala Glu Gly Val Gly Val Leu Leu Val						

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	2865		2870		2875		2880
	Glu Arg Leu Ser Asp Ala Arg Arg Asn Gly His Arg Val Leu Ala Val						
		2885			2890		2895
5	Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr						
		2900		2905			2910
	Ala Pro Ser Gly Pro Ala Gln Gln Arg Val Ile Arg Glu Ala Leu Ala						
10		2915		2920			2925
	Asp Ala Gly Leu Val Pro Ala Asp Val Asp Val Val Glu Ala His Gly						
		2930		2935			2940
	Thr Gly Thr Ala Leu Gly Asp Pro Ile Glu Ala Gly Ala Leu Leu Ala						
15		2945		2950		2955	2960
	Thr Tyr Gly Arg Glu Arg Val Gly Asp Pro Leu Trp Leu Gly Ser Leu						
		2965		2970			2975
	Lys Ser Asn Ile Gly His Ala Gln Ala Ala Ala Gly Val Gly Gly Val						
20		2980		2985			2990
	Ile Lys Val Val Gln Gly Met Arg His Gly Ser Leu Pro Arg Thr Leu						
		2995		3000			3005
	His Val Asp Ala Pro Ser Ser Lys Val Glu Trp Ala Ser Gly Ala Val						
25		3010		3015			3020
	Glu Leu Leu Thr Glu Thr Arg Ser Trp Pro Arg Arg Val Glu Arg Val						
		3025		3030		3035	3040
30	Arg Arg Ala Ala Val Ser Ala Phe Gly Val Ser Gly Thr Asn Ala His						
		3045		3050			3055
	Val Val Leu Glu Glu Ala Pro Ala Glu Ala Gly Ser Glu His Gly Asp						
35		3060		3065			3070
	Gly Pro Glu Pro Glu Arg Pro Asp Ala Val Thr Gly Pro Leu Ser Trp						
		3075		3080			3085
	Val Leu Ser Ala Arg Ser Glu Gly Ala Leu Arg Ala Gln Ala Val Arg						
40		3090		3095			3100
	Leu Arg Glu Cys Val Glu Arg Val Gly Ala Asp Pro Arg Asp Val Ala						
		3105		3110		3115	3120
	Gly Ser Leu Val Val Ser Arg Ala Ser Phe Gly Glu Arg Ala Val Val						
45		3125		3130			3135
	Val Gly Arg Gly Arg Glu Glu Leu Leu Ala Gly Leu Asp Val Val Ala						
		3140		3145			3150
	Ala Gly Ala Pro Val Gly Val Ser Ser Gly Ala Gly Ala Val Val Arg						
50		3155		3160			3165
	Gly Ser Ala Val Arg Gly Arg Gly Val Gly Val Leu Phe Thr Gly Gln						
		3170		3175			3180
55	Gly Ala Gln Trp Val Gly Met Gly Arg Gly Leu Tyr Ala Gly Gly Gly						

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	3185		3190		3195		3200
	Val Phe Ala Glu Val Leu Asp Glu Val Leu Ser Val Val Gly Glu Val						
		3205			3210		3215
5	Asp Gly Arg Ser Leu Arg Asp Val Met Phe Ala Asp Ala Asp Ser Val						
		3220			3225		3230
	Leu Gly Gly Leu Leu Gly Arg Thr Glu Phe Ala Gln Pro Ala Leu Phe						
10		3235			3240		3245
	Ala Leu Glu Val Ala Leu Phe Arg Ala Leu Glu Ala Arg Gly Val Glu						
		3250			3255		3260
	Val Ser Val Val Leu Gly His Ser Val Gly Glu Val Ala Ala Ala Tyr						
15		3265			3270		3275
					3275		3280
	Val Ala Gly Val Leu Ser Leu Gly Asp Ala Val Arg Leu Val Val Ala						
		3285			3290		3295
	Arg Gly Gly Leu Met Gly Gly Leu Pro Val Gly Gly Gly Met Trp Ser						
20		3300			3305		3310
	Val Gly Ala Ser Glu Ser Val Val Arg Gly Val Val Glu Gly Leu Gly						
		3315			3320		3325
	Glu Trp Val Ser Val Ala Ala Val Asn Gly Pro Arg Ser Val Val Leu						
25		3330			3335		3340
	Ser Gly Asp Val Gly Val Leu Glu Ser Val Val Val Thr Leu Met Gly						
		3345			3350		3355
					3355		3360
30	Asp Gly Val Glu Cys Arg Arg Leu Asp Val Ser His Gly Phe His Ser						
		3365			3370		3375
	Val Leu Met Glu Pro Val Leu Gly Glu Phe Arg Gly Val Val Glu Ser						
		3380			3385		3390
35	Leu Glu Phe Gly Arg Val Arg Pro Gly Val Val Val Val Ser Gly Val						
		3395			3400		3405
	Ser Gly Gly Val Val Gly Ser Gly Glu Leu Gly Asp Pro Gly Tyr Trp						
40		3410			3415		3420
	Val Arg His Ala Arg Glu Ala Val Arg Phe Ala Asp Gly Val Gly Val						
		3425			3430		3435
					3435		3440
	Val Arg Gly Leu Gly Val Gly Thr Leu Val Glu Val Gly Pro His Gly						
45		3445			3450		3455
	Val Leu Thr Gly Met Ala Gly Gln Cys Leu Glu Ala Gly Asp Asp Val						
		3460			3465		3470
	Val Val Val Pro Ala Met Arg Arg Gly Arg Pro Glu Arg Glu Val Phe						
50		3475			3480		3485
	Glu Ala Ala Leu Ala Thr Val Phe Thr Arg Asp Ala Gly Leu Asp Ala						
		3490			3495		3500
55	Thr Thr Leu His Thr Gly Ser Thr Gly Arg Arg Ile Asp Leu Pro Thr						

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	3505	3510	3515	3520
	Tyr Pro Phe Gln His Asn Arg Tyr Trp Ala Thr Gly Ser Val Thr Gly	3525	3530	3535
5	Ala Thr Gly Thr Ser Ala Ala Ala Arg Phe Gly Leu Glu Trp Lys Asp	3540	3545	3550
	His Pro Phe Leu Ser Gly Ala Thr Pro Ile Ala Gly Ser Gly Ala Leu	3555	3560	3565
10	Leu Leu Thr Gly Arg Val Gly Leu Ala Ala His Pro Trp Leu Ala Asp	3570	3575	3580
	His Ala Ile Ser Gly Thr Val Leu Leu Pro Gly Thr Ala Ile Ala Asp	3585	3590	3595
15	Leu Leu Leu Arg Ala Val Glu Glu Val Gly Ala Gly Gly Val Glu Glu	3605	3610	3615
	Leu Thr Leu His Glu Pro Leu Leu Leu Pro Glu Arg Gly Gly Leu His	3620	3625	3630
20	Val Gln Val Leu Val Glu Ala Ala Asp Glu Gln Gly Arg Arg Ala Val	3635	3640	3645
	Ala Val Ala Ala Arg Pro Glu Gly Pro Gly Arg Asp Gly Glu Glu Gln	3650	3655	3660
25	Glu Trp Thr Arg His Ala Glu Gly Val Leu Thr Ser Thr Glu Thr Ala	3665	3670	3675
30	Val Pro Asp Met Gly Trp Ala Ala Gly Ala Trp Pro Pro Pro Gly Ala	3685	3690	3695
	Glu Pro Ile Asp Val Glu Glu Leu Tyr Asp Ala Phe Ala Ala Asp Gly	3700	3705	3710
35	Tyr Gly Tyr Gly Pro Ala Phe Thr Ala Leu Ser Gly Val Trp Arg Leu	3715	3720	3725
	Gly Asp Glu Leu Phe Ala Glu Val Arg Arg Pro Ala Gly Gly Ala Gly	3730	3735	3740
40	Thr Thr Gly Asp Gly Phe Gly Val His Pro Ala Leu Phe Asp Ala Ala	3745	3750	3755
	Leu His Pro Trp Arg Ala Gly Gly Leu Leu Pro Asp Thr Gly Gly Thr	3765	3770	3775
45	Thr Trp Ala Pro Phe Ser Trp Gln Gly Ile Ala Leu His Thr Thr Gly	3780	3785	3790
	Ala Glu Thr Leu Arg Val Arg Leu Ala Pro Ala Ala Gly Gly Thr Glu	3795	3800	3805
50	Ser Ala Phe Ser Val Gln Ala Ala Asp Pro Ala Gly Thr Pro Val Leu	3810	3815	3820
55	Thr Leu Asp Ala Leu Leu Leu Arg Pro Val Thr Leu Gly Arg Ala Asp			

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	3825		3830		3835		3840
	Ala Pro Gln Pro Leu Tyr Arg Val Asp Trp Gln Pro Val Gly Gln Gly						
		3845		3850		3855	
5	Thr Glu Ala Ser Gly Ala Gln Gly Trp Thr Val Leu Gly Gln Ala Ala						
		3860		3865		3870	
	Ala Glu Thr Val Ala Gln Pro Ala Ala His Ala Asp Leu Thr Ala Leu						
10		3875		3880		3885	
	Arg Thr Ala Val Ala Ala Ala Gly Thr Pro Val Pro Arg Leu Val Val						
		3890		3895		3900	
	Val Ser Pro Val Asp Thr Arg Leu Asp Glu Gly Pro Val Leu Ala Asp						
15		3905		3910		3915	3920
	Ala Glu Ala Arg Ala Arg Ala Gly Asp Gly Trp Asp Asp Asp Pro Leu						
		3925		3930		3935	
20	Arg Val Ala Leu Gly Arg Gly Leu Thr Leu Val Arg Glu Trp Val Glu						
		3940		3945		3950	
	Asp Glu Arg Leu Ala Asp Ser Arg Leu Val Val Leu Thr Arg Gly Ala						
		3955		3960		3965	
25	Val Ala Ala Gly Pro Gly Asp Val Pro Asp Leu Thr Gly Ala Ala Leu						
		3970		3975		3980	
	Trp Gly Leu Leu Arg Ser Ala Gln Ser Glu Tyr Pro Asp Arg Phe Thr						
		3985		3990		3995	4000
30	Leu Ile Asp Val Asp Asp Ser Pro Glu Ser Arg Ala Ala Leu Pro Arg						
		4005		4010		4015	
	Ala Leu Gly Ser Ala Glu Arg Gln Leu Ala Leu Arg Thr Gly Asp Val						
35		4020		4025		4030	
	Leu Ala Pro Ala Leu Val Pro Met Ala Thr Arg Pro Ala Glu Thr Thr						
		4035		4040		4045	
40	Pro Ala Thr Ala Val Ala Ser Ala Thr Thr Gln Thr Gln Val Thr Ala						
		4050		4055		4060	
	Pro Ala Pro Asp Asp Pro Ala Ala Asp Ala Val Phe Asp Pro Ala Gly						
		4065		4070		4075	4080
45	Thr Val Leu Ile Thr Gly Gly Thr Gly Ala Leu Gly Arg Arg Val Ala						
		4085		4090		4095	
	Ser His Leu Ala Arg Arg Tyr Gly Val Arg His Met Leu Leu Val Ser						
		4100		4105		4110	
50	Arg Arg Gly Pro Asp Ala Pro Glu Ala Gly Pro Leu Glu Arg Glu Leu						
		4115		4120		4125	
	Ala Gly Leu Gly Val Thr Ala Thr Phe Leu Ala Cys Asp Leu Thr Asp						
		4130		4135		4140	
55	Ile Glu Ala Val Arg Lys Ala Val Ala Ala Val Pro Ser Asp His Pro						

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	4145		4150		4155		4160
5	Leu Thr Gly Val	Val His Thr Ala Gly	Val Leu Asp Asp Gly	Ala Leu			
		4165		4170		4175	
	Thr Gly Leu Thr	Arg Gln Arg Leu Asp Thr	Val Leu Arg Pro Lys Ala				
		4180		4185		4190	
10	Asp Ala Val Arg	Asn Leu His Glu Ala Thr	Leu Asp Arg Pro Leu Arg				
		4195		4200		4205	
	Ala Phe Val Leu	Phe Ser Ala Ala Ala Gly	Leu Leu Gly Arg Pro Gly				
		4210		4215		4220	
15	Gln Ala Ser Tyr	Ala Ala Ala Asn Ala Val	Leu Asp Ala Leu Ala Gly				
		4225		4230		4235	4240
	Ala Arg Arg Ala	Ala Gly Leu Pro Ala Val	Ser Leu Ala Trp Gly Leu				
		4245		4250		4255	
20	Trp Asp Glu Gln	Thr Gly Met Ala Gly Gly	Leu Asp Glu Met Ala Leu				
		4260		4265		4270	
	Arg Val Leu Arg	Arg Asp Gly Ile Ala Ala Met	Pro Pro Glu Gln Gly				
25		4275		4280		4285	
	Leu Glu Leu Leu	Asp Leu Ala Leu Thr Gly	His Arg Asp Gly Pro Ala				
		4290		4295		4300	

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Val Leu Val Pro Leu Leu Leu Asp Gly Ala Ala Leu Arg Arg Thr Ala
4305 4310 4315 4320

5 Lys Glu Arg Gly Ala Ala Thr Met Ser Pro Leu Leu Arg Ala Leu Leu
4325 4330 4335

Pro Ala Ala Leu Arg Arg Ser Gly Gly Ala Gly Ala Pro Ala Ala Ala
4340 4345 4350

10 Asp Arg His Gly Lys Glu Ala Asp Pro Gly Ala Gly Arg Leu Ala Gly
4355 4360 4365

Met Val Ala Leu Glu Ala Ala Glu Arg Ser Ala Ala Val Leu Glu Leu
4370 4375 4380

15 Val Thr Glu Gln Val Ala Glu Val Leu Gly Tyr Ala Ser Ala Ala Glu
4385 4390 4395 4400

Ile Glu Pro Glu Arg Pro Phe Arg Glu Ile Gly Val Asp Ser Leu Ala
20 4405 4410 4415

Ala Val Glu Leu Arg Asn Arg Leu Ser Arg Leu Val Gly Leu Arg Leu
4420 4425 4430

25 Pro Thr Thr Leu Ser Phe Asp His Pro Thr Pro Lys Asp Met Ala Gln
4435 4440 4445

His Ile Asp Gly Gln Leu Pro Arg Pro Ala Gly Ala Ser Pro Ala Asp
4450 4455 4460

30 Ala Ala Leu Glu Gly Ile Gly Asp Leu Ala Arg Ala Val Ala Leu Leu
4465 4470 4475 4480

Gly Thr Gly Asp Ala Arg Arg Ala Glu Val Arg Glu Gln Leu Val Gly
4485 4490 4495

35 Leu Leu Ala Ala Leu Asp Pro Pro Gly Arg Thr Gly Thr Ala Ala Pro
4500 4505 4510

Gly Val Pro Ser Gly Ala Asp Gly Ala Glu Pro Thr Val Thr Asp Arg
40 4515 4520 4525

Leu Asp Glu Ala Thr Asp Asp Glu Ile Phe Ala Phe Leu Asp Glu Gln
4530 4535 4540

45 Leu *
4545

50

55

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

CGAGGCCGGC GGGCC

Claims

1. A DNA molecule comprising an isolated DNA sequence that encodes a ty lactone synthase domain.
2. The DNA molecule as claimed in Claim 1 wherein the isolated DNA sequence is selected from the group consisting of:
nucleotides 942 to 2156, 2571 to 3557, 3675 to 3929, 3993 to 5264, 5631 to 6617, 7410 to 7949, 8220 to 8471, 8541 to 9812, 10260 to 11246, 11319 to 11876, 12861 to 13415, 13719 to 13970, 14411 to 15697, 16055 to 17122, 17198 to 17794, 18584 to 19138, 19415 to 19666, 20136 to 21404, 21771 to 22757, 23541 to 24077, 24360 to 24611, 24675 to 25949, 26292 to 27284, 27360 to 27917, 28767 to 29813, 29829 to 30368, 30651 to 30902, 31337 to 32608, 32975 to 33961, 34694 to 35236, 35492 to 35743, 36360 to 37631, 37989 to 38987, 39759 to 40313, 40575 to 40826, and 41235 to 41333 all in SEQ ID NO:1.
3. The DNA molecule as claimed in Claim 1 wherein the isolated DNA sequence is selected from the group consisting of:
nucleotides 942 to 8471, 8541 to 13970, 14411 to 19666, 20136 to 24611, 24675 to 30902, 31337 to 35743, and 36360 to 40826 all in SEQ ID NO:1.
4. The DNA molecule as claimed in Claim 1 wherein the isolated DNA sequence is selected from the group consisting of:
nucleotides 816 to 14234, 14351 to 19945, 20010 to 31199, 31232 to 36067, and 36249 to 41774 all in SEQ ID NO:1.
5. The DNA molecule as claimed in Claim 1 wherein the isolated DNA sequence is SEQ ID NO:1.
6. A polypeptide comprising an amino acid sequence that consists of a ty lactone synthase domain.
7. The polypeptide of claim 6 wherein the amino acid sequence is selected from the group consisting of:
 - (a) amino acids 43 to 447, 586 to 914, 954 to 1038, 1060 to 1483, 1606 to 1934, 2199 to 2378, 2469 to 2552, 2576 to 2999, 3149 to 3477, 3502 to 3687, 4016 to 4200, and 4302 to 4385 in SEQ ID NO:2;
 - (b) amino acids 21 to 449, 569 to 924, 950 to 1148, 1412 to 1596, and 1689 to 1772 in SEQ ID NO:3;
 - (c) amino acids 43 to 465, 588 to 916, 1178 to 1356, and 1451 to 1534, 1556 to 1980, 2095 to 2425, 2451 to 2636, 3274 to 3453, and 3548 to 3631 in SEQ ID NO:4;
 - (d) amino acids 36 to 459, 582 to 910, 1155 to 1335, and 1421 to 1504 in SEQ ID NO:5; and
 - (e) amino acids 38 to 461, 581 to 913, 1171 to 1355, 1443 to 1526, and 1663 to 1695 in SEQ ID NO:6.
8. The polypeptide of claim 6 wherein the amino acid sequence is selected from the group consisting of:
 - (a) amino acids 1060 to 2552 and 2576 to 4385 in SEQ ID NO:2;
 - (b) amino acids 21 to 1772 in SEQ ID NO:3;

- (c) amino acids 43 to 1534 and 1556 to 3631 in SEQ ID NO:4;
- (d) amino acids 36 to 1504 in SEQ ID NO:5; and
- (e) amino acids 38 to 1526 in SEQ ID NO:6.

- 5 **9.** The polypeptide of claim 6 wherein the amino acid sequence is selected from the group consisting of SEQ ID NO: 2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, and SEQ ID NO:6.
- 10.** A recombinant DNA vector comprising a DNA molecule of Claim 1.
- 10 **11.** A recombinant DNA vector comprising a DNA molecule of Claim 2.
- 12.** A recombinant DNA vector comprising a DNA molecule of Claim 3.
- 13.** A recombinant DNA vector comprising a DNA molecule of Claim 4.
- 15 **14.** A recombinant DNA vector comprising a DNA molecule of Claim 5.
- 15.** A recombinant DNA vector of Claim 10 which is NRRL B-18688.
- 20 **16.** A recombinant DNA vector of Claim 10 which is NRRL B-18689
- 17.** A host cell transformed with a recombinant DNA vector of Claim 10.
- 18.** A host cell transformed with a recombinant DNA vector of Claim 11.
- 25 **19.** A host cell transformed with a recombinant DNA vector of Claim 12.
- 20.** A host cell transformed with a recombinant DNA vector of Claim 13.
- 30 **21.** A host cell transformed with a recombinant DNA vector of Claim 14.
- 22.** The DNA molecule as claimed in Claim 1 wherein the isolated DNA sequence is SEQ ID NO:7.
- 35 **23.** The polypeptide of SEQ ID NO:8.

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Fig. 1

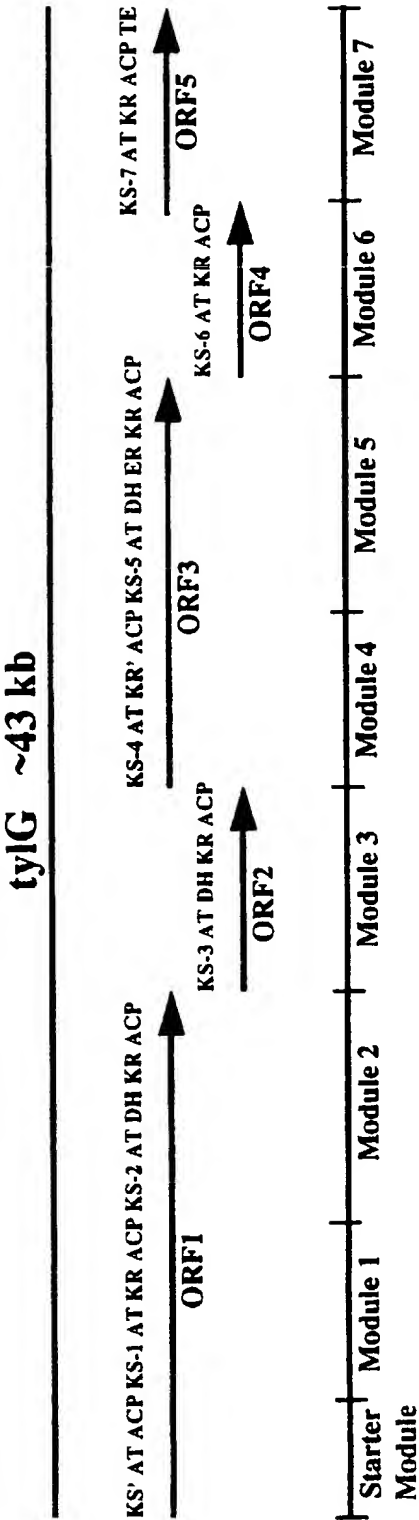


Fig. 2

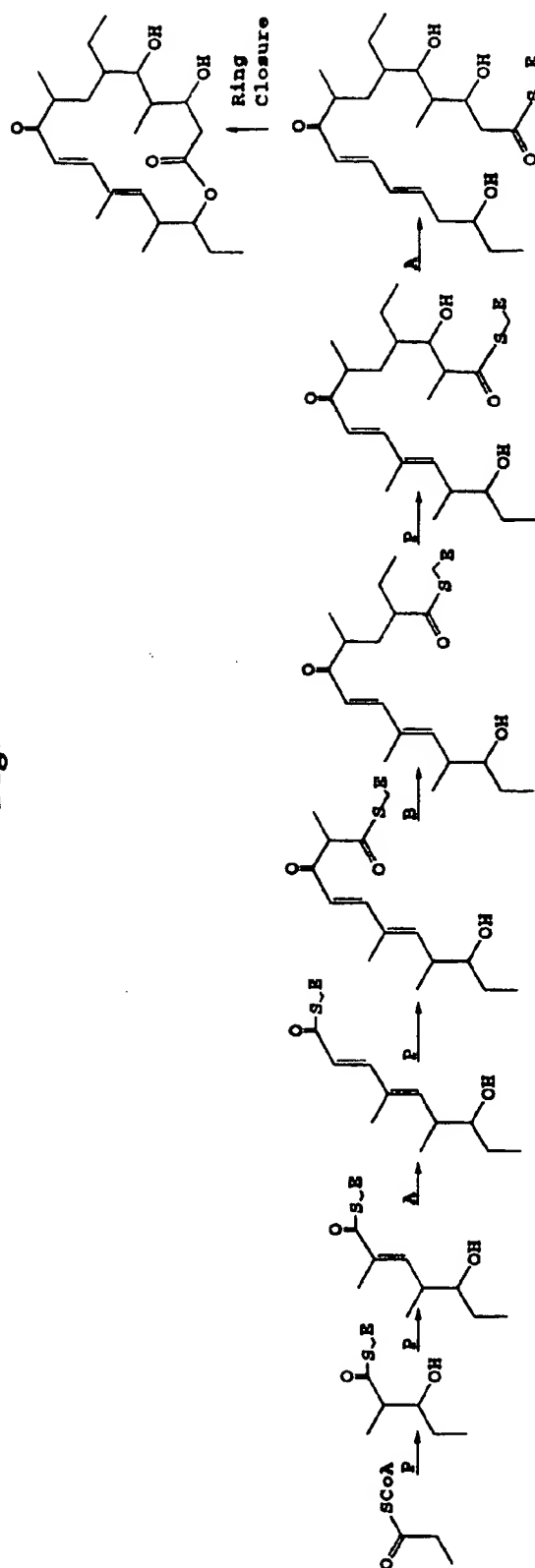


Fig. 3

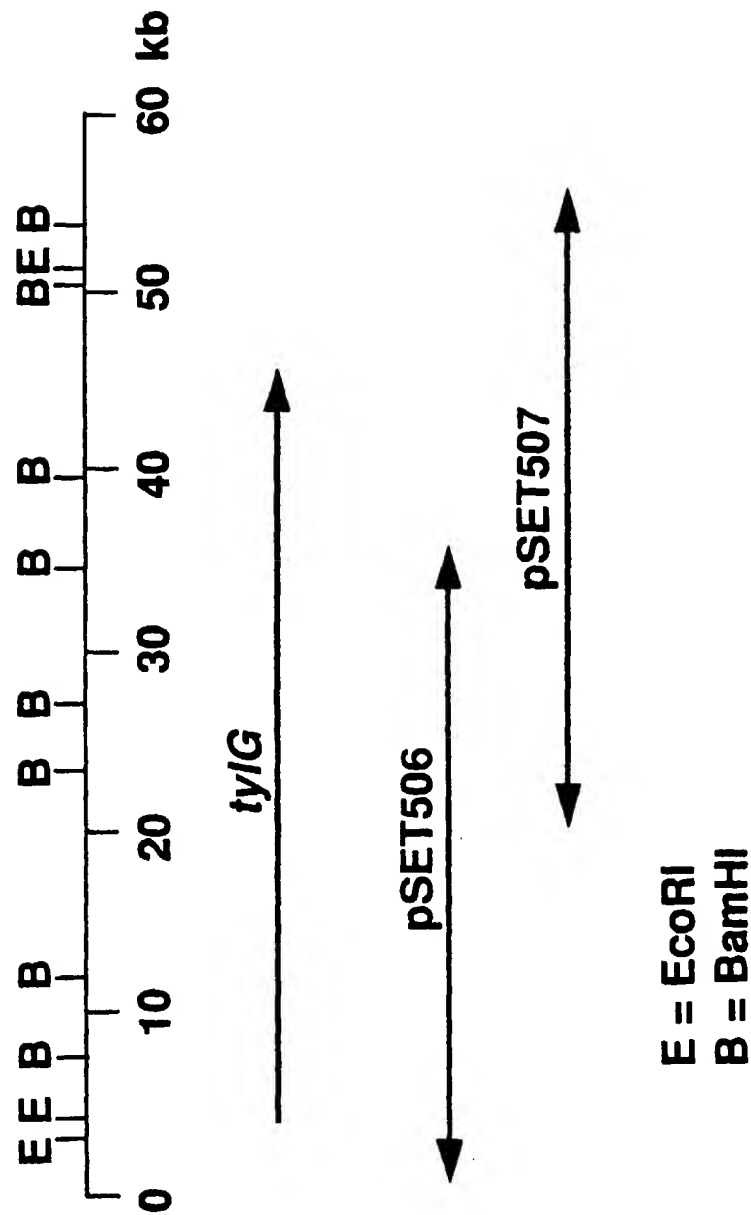
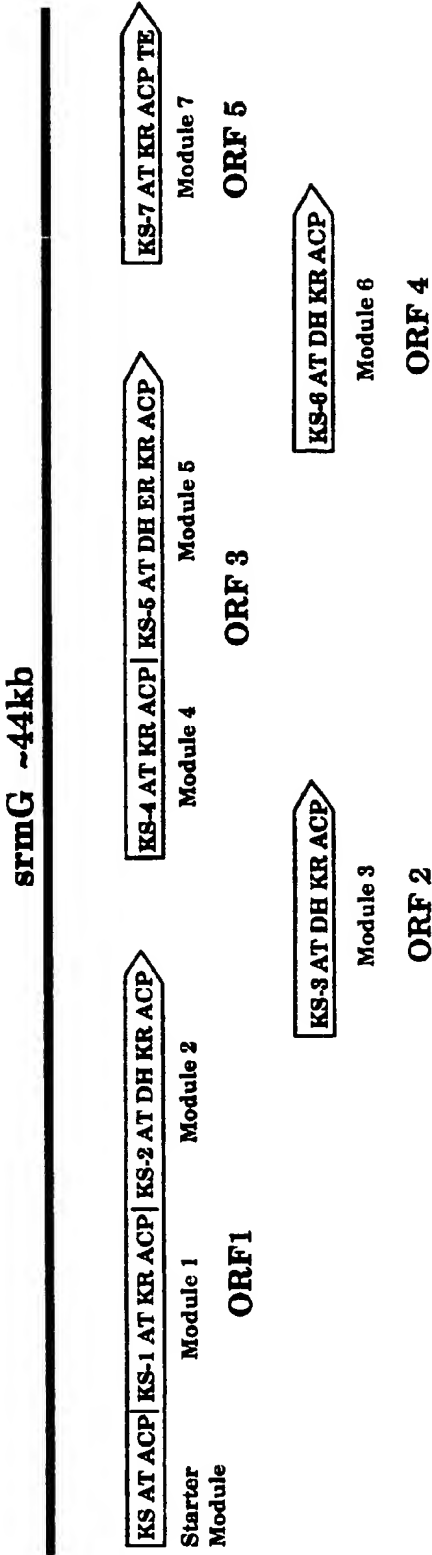


Fig. 4



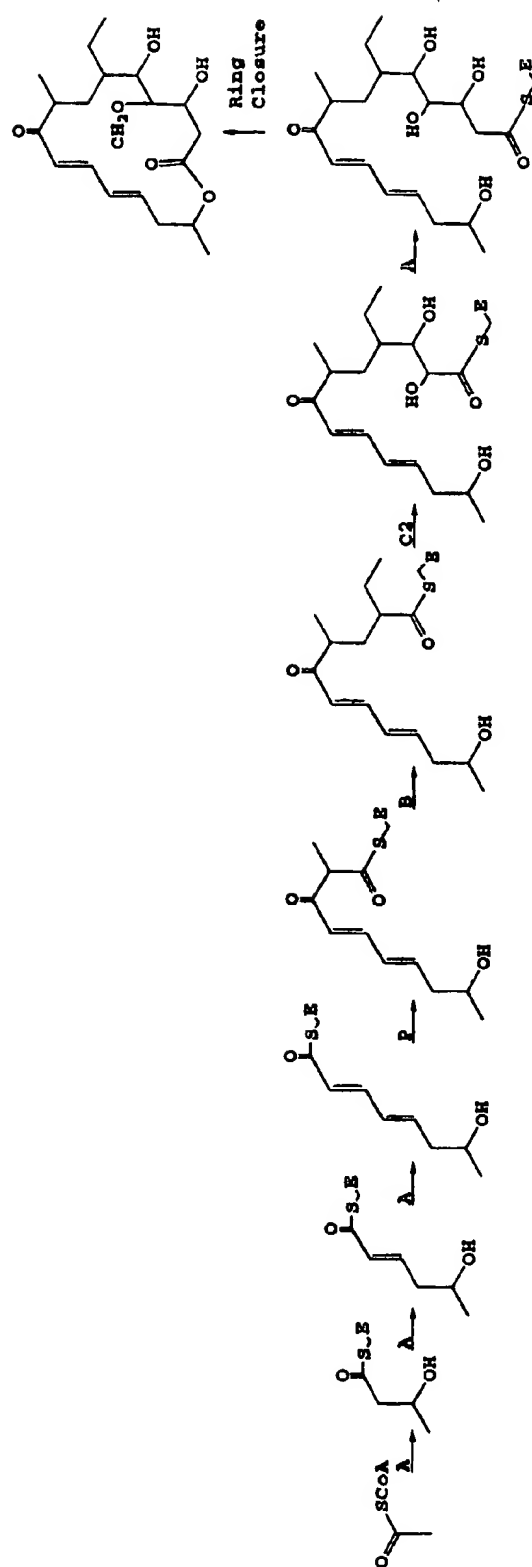


Fig. 5

Fig. 6

